The Builder.

VOL. XIV.—No. 724.

EARL DE GREY presided at the opening meeting of the ARCHITECTURAL EXHIBITION, in the Suffolk-street Galleries, on the evening of Tuesday, the 16th, when there was a very large attendance of members of the profession and lovers of the art, including a considerable number of ladies. Depending merely on recollection we may jot down as amongst the gentlemen present—Professor Cockerell, Professor Donaldson, Mr. Fergusson, Mr. Henry Baker, Mr. Cockerell, jun. Mr. Sancton Wood, Mr. Griffith, Mr. Papworth, Mr. Edmeston, Mr. Ashpitel, Mr. Clarke, Mr. T. H. Wyatt, Mr. Sidney Godwin, Mr. Thoms, Mr. C. H. Smith, Mr. Houle, Mr. Stevens, of Derby; Mr. Smith, of Hereford; Mr. Norton, Mr. Jennings, Mr. Truefitt, Mr. Edward Hall, Mr. James Wylson, Mr. Field, Mr. Woodthorpe, Mr. Kerr, Mr. Geo. Morgan, Mr. Lewis, Mr. Henry Hart, Mr. Burnell, Mr. Blatchley, Mr. F. Richardson, Mr. G. R. Corner, the Rev. Mr. Boutell, Mr. Chas. Mayhew, the Rev. Joseph Hunter, Mr. Parker, of Oxford, Mr. Thomson, &c.

The president on taking the chair, said he had been told he might be of use by presiding on that occasion, and there he was. A quarter of a century ago architects in this country were not numerous, and these did not work together. Now, however, it was different, and they formed an important body. If not the first society that was established to bring the profession together, the first that came under his notice was the Royal Institute of British Architects. Why he was made the president of that body he could scarcely say, as at that time he had no special knowledge of architecture: but it was thought, and he himself always was of opinion, that a mixture of classes was desirable; moreover, it might have been considered that as a man without any interested motives, or any particular theory to advance, he was better fitted for it than a member of the profession; and it was, perhaps, on that ground that he was selected. This was the commencement of his connection with architects and architecture, and he should be most ungrateful if he did not acknowledge at all times the kindness, he might say affection, he had been received with. When he afterwards became his own architect, which he was compelled to admit he did, he had no doubt the profession forgave him with the impression that, finding difficulties, and making mistakes himself, he would so learn to appreciate and forgive others. The second institution he would speak of was the Architectural Museum, an association with an entirely different but to another class equally useful object. An architect, at a recent meeting there, had spoken of the advantage which had resulted under his own eye from leading workmen from the country to visit the Museum; and he, the president, had had cases wherein, if he could have sent men to study the various specimens contained in the Museum, he would gladly have done so. There could be no doubt of its great value. The Architectural Exhibition was the third, and that differed altogether from the other two. The Institute was for the hard heads of the profession; the Museum for the hard hands of the operative; and the Exhibition was for the encouragement of a general feeling on the part of the public, in behalf of the art. The friends and supporters of the exhibition need not all be architects: all might gain by assisting it. He thought it likely to be of the highest service in many ways. An architect to be great should be an artist,—at any rate should have the tastes and feelings of the artist,—and this institution was valuable in fostering that taste. The collection was not confined to designs, but included sketches and views of great merit. He must certainly give the managers credit for another thing, and that was for interesting so many ladies in the Institution. Once get the ladies to support a movement and it was sure to succeed. Even amongst the exhibitors there was one lady, and he must remark that her works did her infinite credit. He would further take the liberty of saying to the ladies, you cannot do a better thing than encourage in your children love of the fine arts and a taste for drawing. It was advantageous in every station, and not least to those who needed no profession, for it gave them a pursuit and kept them out of mischief. Some time ago he had filled the office of Lord-Lieutenant of Ireland: her Majesty probably did not select him on account of any knowledge he might have of drawing, but he would tell them how it operated in one instance, although not very important. When he went into the viceroyal residence he adopted as a dressing-room an apartment not before used, and unable otherwise to make the keeper comprehend what he wanted to fit it for use, drew out a plan of the arrangement he desired, and a sketch of a washing-stand; on which Paddy rushed off and declared throughout the town that "Ireland had never had such a man for Lord-Lieutenant, for he could draw a washhand-stand as well as an upholsterer." He had said, however, enough, but if he had been presiding at a dinner for the advantage of the Institution, he certainly would have added, "Prosperity to the Architectural Exhibition," with three times three.

Mr. Ashpitel, the treasurer, then made some observations on the financial position of the exhibition. When the committee decided on taking the galleries in which they then were, it had been thought a bold step; but the lectures last year had proved very successful: much of the balance on the wrong side had been paid off, and it only needed the exertion of its friends to give him, the treasurer, what he had never yet had, the burden of a balance. Briefly alluding to a few points connected with the exhibition, he would remind them that there were from 400 to 500 drawings gathered together in all styles, and it was an interesting feature, that it included a number of the designs sent in for three recent competitions, Lille, Liverpool, and Rotherham. If anything could check committees, and prevent hole-and-corner work, it would be the knowledge that the various designs would afterwards be exhibited here. At Lille the successful competitor had been put on one side, and the execution of his design given to a Frenchman; and he had been given to understand that at Liverpool the successful competitor would be treated in the same way. He could understand such a thing occurring between two foreign countries, but wholly amongst Englishmen he could not. The designs in the room, he was glad to see, were not a parcel of splendid impossibilities. the majority of them had an end, an aim, a use, and a purpose. The collection of building materials was a valuable part of the exhibition. It was of the utmost importance to know how to carry out a design efficiently at the least possible cost. It would be observed that there was much originality in some of the designs, and this was of great consequence. The mere copyist would never leave what succeeding ages would value. Some of the endeavours wanted taming down; but reflection would do that. It should be remembered that the perfectness of an art was never effected by an individual, it was the result of united efforts; and he did hope that the Architectural Exhibition would give rise to a lasting school of architecture in England.

Professor Cockerell said, as a veteran student of art amongst them, a proposition had been confided to him which he was sure they would confirm unanimously: it was a vote of thanks to the Earl de Grey for his kindness in presiding on that occasion. The noble president had been modest in expressing his own qualifications, but all who knew him knew the zeal he had exhibited in favour of their art. As president of the Institute, the Earl had invariably shown the greatest attention to its interests, and kind bearing to the members. There was a general call for the right man in the right place, and the president certainly fulfilled the dictum. It was satisfactory to see our princes finding interest in the art: artists needed princes, but it should be remembered at the same time that princes needed artists. An examination of the collection would show the progress our art was making: many new masters had shown themselves, and there was an affluence of clever works. He had every reason to believe that this our day would mark its own character, and leave monuments worthy of our age and advanced position.

The motion was carried by acclamation, and the president, in reply, said that when he took the chair at the first meeting four years ago, the bantling had been christened, but was a weakly infant: the nurses, however, had done their duty well, and it might now be regarded as a thriving child, able to stand on its own legs, and hold up its head in the world. He would regard all who were present on that occasion as godfathers and godmothers, and, with such an army of sponsors, its progress and success could not fail to be rapid.

The interval from the last exhibition having been remarkable more for *projects* than for completed buildings, it was perhaps hardly to be expected that the exhibition of the present year should present any great advance upon its predecessors. An unusual number of competitions, and those of a very important character, are still in preparation; and, as no amount of ill-treatment seems to prevent the aspiring architect of our day from adventuring in these *lotteries*, we may suppose that the circumstances referred to have told much against the year's gathering in Suffolk-street. The day may arrive when the objects now sought through competitions will be attained by the profession through the medium of an exhibition such as that which we hope will one day exist,—and to this end no less than for public interests, the present collection of works deserves to be visited by all who can conceive the importance which architecture, as art and science, necessarily has so long as beauty is sought for in all things, and places of habitation are required.

Many leading members of the profession are still absent from the walls. We continue to regard as the main object of the Exhibition, the illustration of what has been carried into execution during the year. We will just venture to point out a few omissions, such as it should be the object in future to prevent. In church architecture we do not find any sufficient information by plan and section, or even by views, of what has been doing in the restoration of the different cathedrals. Several of the best of the new works of the year are not shown: for example, some by Mr. Scott and Mr. Ferrey; the decoration and fittings of the Salford Catholic Cathedral, by Messrs. Weightman, Hadfield, and Goldie; and Mr. Teulon's Church in Lambeth, and some others, given in our pages. In the class of public buildings we may name the works at the Houses of Parliament; at Somerset

House; the Junior United Service Club; the Surrey Gardens Music Hall; the Schools for the Department of Art, at Brompton; the City Bank; the buildings at the City of London Cemetery: the new Music Hall at Birmingham; the Birmingham and Midland Institute; the Manchester Art-Treasures Exhibition Building, in course of erection, and the Manchester Mechanics' Institution; the tower to the new Townhall at Leeds; the additions to Exeter College, Oxford; the Wellington College, Sandhurst; the Victoria Military Hospital; the Scutari monument, and several other monuments; and the new Ball-room at Buckingham Palace. Illustrations of some of these and other works have been engraved for the *Builder*, but should have been found also in the Architectural Exhibition. In consequence of such omissions, as we took occasion to show last year, erroneous notions as to the state of actual architecture in our day, get disseminated amongst the public. The fact is, the architects who are most actively engaged in practical architecture, are precisely those who are least able to contribute drawings; and this circumstance should be understood by the critics of the daily and weekly press.

We shall notice some of the principal works hereafter, and in the meanwhile we again invite our readers to give their earnest aid to the Exhibition. The profession are greatly indebted to the exertions of Mr. Fergusson, Mr. Edmeston, and other leading members of the committee.

We are glad to be assured that there is now no doubt of the success of the undertaking; and the opportunity which all may have of visiting the galleries and attending lectures during the season, at a nominal rate, will, we hope, at once be taken advantage of. Architecture for the general mass of the public, still offers "a new pleasure," and this will be derived as are intellectual gratifications—those which are most valuable and most pleasurable, as well as enduring,—after the subject is opened, and the study is commenced,—as may be done from the Exhibition and lectures in Suffolk-street.

We will only add now that the two rooms devoted to materials and manufactured articles are well filled, and very much advantage will result from that portion of the Exhibition.

ONSLOW CHAPEL, QUEEN'S ELM, BROMPTON.

In the early part of 1852, the Rev. J. Bigwood was requested by a small congregation, gathered together in Thurloe Chapel, Alexander-square, Brompton, by the Rev. James Macaulay, of the Free Church of Scotland, to become their minister. He consented; and on June 10th, 1852, about forty persons, including Episcopalians, Presbyterians, Independents, and Baptists, met, and passed a resolution forming themselves into a church. The congregation increased, and have now built a chapel for themselves near Queen's Elm, in the Brompton-road.

The foundation-stone of the edifice was laid on the 6th of May last, by the Hon. A. Kinnaird, M.P. and is in the Decorated style. The materials employed externally are Kentish ragstone for the plain portions of the walls, and Bath stone for the dressings of the doorways, windows, tracery, weatherings, and copings. The elevation next the roadway consists of a central gable, in which is a window of four lights, with a small tower at each side, surmounted by a spire partly perforated. These towers have square bases, with octagonal superstructures on them, surmounted by open belfries and spires. On each side of the chapel are five pointed windows of two lights, with tracery heads. In the vestry at the east end are two pointed windows, filled with stained glass. The clear internal size is about 67 feet long, and 47 feet in width, and the height 42 feet to the crown of the arch under the timbers of the roof. This area also comprehends a minister's vestry. There is a gallery at the west end, which projects 14 feet from the walls, and altogether the chapel is computed to contain 750 hearers. The roof does not show its constructive timbers. It consists of a large pointed arch, which spans the area between the side walls. This is divided into compartments, by main beams springing from the piers between the windows, dividing it into six divisions, between which are panels formed by intermediate ribs. The ceiling is fawn-coloured. Mr. Mumford was the architect; Mr. T. Rudkin the contractor. The amount of the contract was 2,369*l.*; entire cost, including heating, lighting, furniture, &c. about 3,500*l.* There is school accommodation at the back for 300 children.

ON THE LEADING PRINCIPLES IN THE COMPOSITION OF ORNAMENT OF EVERY PERIOD.*

Ornament is the result of an innate desire in man to produce for himself forms of beauty, in imitation of the works of nature by which he is surrounded: he sees everywhere that the Creator has made all things not only useful, but beautiful; and he in turn desires to create.

There is scarcely a people, in however early a state of civilisation, with whom this strong desire does not exist. It is absent in none, and it grows and increases in the ratio of their progress in civilisation.

It is to this feeling that we must ascribe the tattooing of the human face and body, resorted to by the savage to increase the expression by which he seeks to strike terror on his enemies or rivals, or to create what appears to him a new beauty. As we advance higher through the whole range of civilisation, from the decoration of the rude tent or wigwam to the sublime works of a Phidias or a Praxiteles, the same feeling is everywhere apparent. Man's highest ambition is to create, to stamp on this earth the impress of an individual mind.

From time to time a mind, stronger than those around us, will impress itself on a generation, and carry with it a host of others following in the same direction; yet never so completely as to destroy the individual ambition to create. Hence the formation of styles, and the modification of styles.

Ornament, with every people, precedes the development of every other form of art. Architecture, one of the earliest, adopts ornament, does not create it. As we find that to ornament is, with every people, one of the first natural instincts; so we shall find, that in the exercise of this instinct they could not do otherwise than follow natural laws.

The ornament of a savage, being the result of a natural instinct, is necessarily always true to its purpose; whilst in much of the ornament of civilised nations, the first impulse which generated certain received forms being enfeebled by constant repetition, the ornament is oftentimes misapplied. And instead of first making the most convenient form, and adding beauty, all beauty is destroyed, because all fitness, by superadding ornament to ill-contrived form. If we would return to a more healthy condition, we must even be as little children, or as savages: we must get rid of the acquired and artificial, and return to and develop our natural instincts.

It would be far beyond the limits of the powers of any one individual to attempt to gather together illustrations of the innumerable and ever-varying phases of ornamental art. It would be barely possible if undertaken by a government, and even then it would be too voluminous to be generally useful. All, therefore, that I have proposed to myself in forming the collection which I have ventured to call the *Grammar of Ornament*, has been to select a few of the most prominent types in certain styles closely connected with each other, and in which certain general laws appeared to reign independently of the individual peculiarities of each. And it will be my endeavour to show, that in all the varying phases of ornamental art these leading principles are the same as those which every work of nature displays.

I have ventured to hope that, in bringing into immediate juxtaposition many forms of beauty which every style of ornament presents, I might aid in arresting that unfortunate tendency of our time to be content with copying, whilst the fashion lasts, the forms peculiar to any bygone age, without an endeavour to ascertain, generally completely ignoring the peculiar circumstances which rendered an ornament beautiful, because it was appropriate, and which, as expressive of other wants, when thus transplanted, as entirely fails.

It is more than probable that the first result of sending forth to the world this collection will be seriously to increase this dangerous tendency, and that many will be content to borrow from the past those forms of beauty which have not already been used up *ad nauseam*. It will be my endeavour to arrest this tendency, and to awaken a higher ambition.

By endeavouring to search out the thoughts which have been expressed in so many different languages, we may hope to find an ever-gushing fountain in place of a half-filled stagnant reservoir.

In the prosecution of this work, and in the study of ornament, I have gathered these main facts:—

First. That whenever any style of ornament commands universal admiration, it will always be found to be in accordance with the laws which regulate the distributions of form in nature.

Secondly. That however varied the manifestations in accordance with these laws, the leading ideas on which they are based are very few.

Thirdly. That the modifications and developments which have taken place from one style to another have been caused by a sudden throwing off of some fixed trammel, which set thought free for a time, till the new idea, like the old, became again fixed, to give birth in its turn to fresh inventions; changes in the general character of ornament which are analogous in their results to organic changes in architecture, such as the substitution of the arch for the horizontal beam by the Romans, and the pointed arch of the Normans for the round arch of their predecessors. They have the same influence in the history of Art as the sudden discovery of a general law in science, or the lucky patented idea which, in any work of industry, suddenly lets loose thousands of minds to examine and improve upon the first crude thought.

Lastly. I will endeavour to show that the future progress of ornamental art may be best secured by engrafting on the experience of the past the knowledge we may obtain by a return to nature for fresh inspiration. To attempt to build up theories of art, or the formation of a style, independently of the past, would be an act of supreme folly. It would be at once to reject the experiences and the accumulated knowledge of thousands of years. On the contrary, we should regard as our inheritance all the successful labours of the past, not blindly to follow them, but simply as guides by which we may find the true path.

We have, then, first to consider what are the laws of form which we find in nature, and which are universally obeyed in all those archaic periods of art of which the works command, and ever will command, the admiration of the world.

If we examine any work of nature — a man, an animal, a tree, a flower, — we shall at once see that, independently of the beauty which results from the fitness of any part for the duty it has to perform, there is another beauty superadded which bears the same relation to the general structure that ornament does to the architectural members of which it forms a part. It is, in fact, ornament. There is no necessity for the covering of the muscles or the bark of a tree to assume the beautiful form which nature has given to it, still less for the decorative beauty superadded, both of surface, ornament, and of colour, except to satisfy certain faculties which the Creator has implanted in us. Man, besides his intellect, possesses sentiments and affections, and the delight we experience in looking upon any work of perfect beauty results from all these faculties being thoroughly satisfied, leaving the mind in a state of repose. We therefore lay it down as an axiom,—

1. *That true beauty results from that repose which the mind feels when the eye, the intellect, and the affections, are satisfied from the absence of any want.* This test may be applied to ornament in many ways.

Egyptian ornament was not only constructed in a way to satisfy the eye by the beauty of its form, the mind by the propriety of its applica-

* From the "Grammar of Ornament," read before the Royal Institute of British Architects, December 15, 1856, by Owen Jones, Fellow, Corresponding Member of the Academy of St Fernando, of Madrid.

ONSLOW CHAPEL, QUEEN'S ELM, BROMPTON.

tion, but also as a religious symbol it appealed to the sentiments and affections. It was complete in itself and the mind of the beholder was in as perfect rest as when looking on its natural type. Egyptian constructive ornament was always symbolic: the column only a few feet high, or one 40 feet or 60 feet, as at Luxor or Karnac, was an enlarged papyrus plant; the base representing the root, the shaft the stalk, and the capital the full-blown flower, surrounded by a bouquet of smaller plants, tied together by bands. Not only did a series of columns represent a grove of papyri, but each column was in itself a grove; and we find on the walls of Egyptian buildings representations of groves of papyri in various stages of growth, which would only have to be assembled as they stand, and tied round with a string, and we should have the Egyptian shaft, with its highly ornamented capital. Egyptian art, although the oldest, is, in all that is requisite to constitute a true style of art, the most perfect. The language in which it reveals itself to us may seem formal and rigid, but the ideas and the teachings it conveys to us are of the soundest. All other styles approach perfection only so far as they follow, in common with the Egyptians, the true principles to be observed in every flower that grows. Like these favourites of nature, every ornament should have its perfume, *i.e.* the reason of its application. It should endeavour to rival the grace of construction, the harmony of its varied forms, and the due proportion and subordination of one part to the other found in the model. When we find any of these characteristics are wanting in a work of ornament we may be sure that it belongs to a borrowed style, where the spirit which animated the original work has been lost in the copy.

Greek ornament, not being a symbol possessing only beauty of form and fitness of application, leaves a want, which is only supplied when the ornament is used as an accessory to painting and sculpture. The Moors and Arabs, on the contrary, being debarred from these adjuncts, but possessing the same refined instincts as the Egyptians, by interweaving with their ornaments inscriptions appealing both to the highest faculties and sentiments, obtained that same repose which we find in every work of nature, however humble, and which we hold to be the first condition of a work of art.

2. Again, we never find in nature any superfluous ornament: there we always find *construction decorated, decoration never purposely constructed.* When an ornament is constructed falsely, appearing to give support which it does not, it fails to engender the feeling of repose by neglecting to satisfy the intellect, however much its beauty and other charms may appeal to the eye and the affections. This law, so constantly violated in modern times, was universally obeyed in all the best periods of art. The Egyptians and the Greeks always obeyed it; as did likewise the Arabs, Moors, Indians, and even the Chinese. With the Moors especially, not only does all their ornament obey this law of decorating construction, but the constructive idea is carried out in the details of the ornament itself. The Romans, the artists of the Renaissance, the Italian, and the later Gothic periods, equally disregarded it. We derive farther, from observation of Nature's works, another proposition, viz. that—

3. *Beauty of form is produced by lines growing out from the other in gradual undulations: there are no excrescences: nothing could be removed and leave the form equally good or better.*

There is nothing more characteristic of true art than the gradual undulation of form. In nature all transitions of curved lines from curved, or of curved lines from straight, are gradual. There is nothing abrupt, and this is the feature which distinguishes in all things the elegant and refined from the coarse and vulgar: it is the property of pure form, either in rest or in motion.

The gradual undulation of form is the secret of success in Greek art: the want of it is the sign of the decline of the Roman. It was possessed by the Gothic artists of the thirteenth century, and even by those of the Renaissance, but it lasted with them only for a time.

With Michelangelo and his followers commenced a new era. Grace of outline and delicacy of undulation were abandoned for boldness of conception and wonderful fertility of execution, which, whilst appealing more strikingly to the intellect and the senses, left unsatisfied the more refined instincts and the affections. The same change took place in ornament: from the delicate relief and modulation of the Renaissance artists, those of the sixteenth and seventeenth centuries returned to the coarser modelling of the Romans. The refinements which the early artists obtained by a return to nature for fresh inspiration were gradually forgotten, and ended in a style which for want of a name has been called the Rococo. In modern times a return to a more moderate relief was obtained in this country by the works of Adams, Flaxman, and Sir John Soane: but it took but slight root, and the great rush upon Roman architecture in the time of George the Fourth deluged the country with ornament outrivalling in coarseness all Roman models, and ended in a state of disorder, in the misapplication and imperfect modelling and drawing of ornament, from which we are now but slowly recovering. The artists of France have been kept within bounds. Percier and Fontaine exercised a similar influence in France to our Adams here—an influence, which from the more general academic system in France, has not been lost sight of; and the abundant studies of so many French artists in Italy have resulted in forming in France a style of ornament which borders on the other extreme, and from its flatness often verges upon insipidity.

If we examine the leaf of a plant or a tree, we shall find that, independently of the beauty of the general form, there is another beauty which arises from the exquisite way in which all the lines on the surface are distributed over its area.

However varied the general outline of the leaf, it will be found to be arranged in masses, the areas of which always diminish in regular proportion. Up the centre of each mass is a main sap-feeder; and as the object clearly is to distribute the sap to the extremities of the leaf in the readiest way, however varied the form, the main sap-feeders will divide the masses into proportionate areas. Every portion of these spaces is again subdivided in the same way; with such perfection, that the skeleton of a dissected leaf presents the appearance of a series of graduated tints in which there is no break.

Now we shall find in all decorative ornament of the best period that this natural law has been instinctively obeyed, not only in the distribution of form on the individual ornament, but also in the general arrangement of a group, and we therefore venture to lay down as an axiom that, in the composition of ornament,—

4. *The general forms should be first cared for: these should be subdivided and ornamented by general lines: the interstices may then be filled in with ornament, which may again be subdivided and enriched for closer inspection.*

The Greeks were most happy in their recognition of this law; but the Moors, perhaps, have more fully carried it out. With them ornament adapts itself so perfectly to the general form which encloses it, that it as often would appear to have suggested, as to have resulted from it.

5. We observe also another natural law in the works of all the Oriental nations, that in their surface decoration ALL LINES FLOW OUT OF A PARENT STEM: EVERY ORNAMENT, HOWEVER DISTANT, CAN ALWAYS BE TRACED TO ITS BRANCH AND ROOTS.

6. *All junctions of curved lines with curved, or of curved lines with straight, should be tangential to each other.*

Nature is said to abhor a vacuum: it may equally be said she abhors an angle. In the whole range of her vegetable productions it will be impossible to find a line butting on another line, every branch of a tree, every stem of a leaf, every vein upon the leaf, is always softened at the point of junction with another by a re-entering curve. This also is a natural law universally obeyed in the best periods of art, equally violated when art declines. It is always present in Greek ornament, often absent in the ornament of Pompeii.

Another universal law which may be recognised in every work of nature, and which should be observed in every assemblage of forms, as well as in each simple ornament, is, that whenever we recognise perfect harmony in any composition, it will be found that the straight, the inclined, and the curved, are properly balanced and contrasted. When any of these forms are wanting, the eye is as much disturbed by an unsatisfied want as when, looking on any composition of colours, any one of the three primaries is absent. In all the geometrical patterns of the Egyptians and all the Mahommedan races this is especially cared for, as well as by the Greek and by the Gothic architects in all their

tructures. It is daily and hourly neglected in modern times. It is one of the most serious faults in the decorations of the interiors of houses, and absolutely fatal in articles of costume, where lines are constantly running in one direction uncorrected, and as constantly tending to destroy the repose of the forms which they are designed to decorate and develope.

We have thus seen that the natural laws of decorating construction, the gradual undulations of form, proportionate division and subdivision of general masses; the radiation from a parent stem, tangential curvature of lines; the balancing and contrast of the straight, the inclined, and the curved, are universally obeyed in every perfect work of ornament.

I will now endeavour to show, in the second place, that *however varied the forms which have been generated in the several styles of ornament in accordance with these general laws, the leading ideas on which they are based are very few.*

The ornament of Egypt is founded on few types, and these natural types. The lotus and papyrus, growing on the banks of the Nile, symbolising the food for the body and mind; the feathers of rare birds, which were carried before the king as emblems of sovereignty; the palm branch, with the twisted cord made from its stems; these are the few types which form the basis of that immense variety of ornament with which the Egyptians decorated the temples of their gods, the palaces of their kings, the covering of their persons, their articles of luxury, or of more modest daily use, from the wooden spoon which fed them, to the boat which carried their similarly adorned embalmed bodies across the Nile to their last home in the valley of the dead.

In Greek ornament the types are still more limited: the honeysuckle and the acanthus are as universal as the lotus and papyrus with the Egyptians. There is much, however, of Greek ornament which is rather constructed on the general principles which reign in all plants, than representing any particular plant. The laurel, ivy, and vine are sometimes used as borders on vases surrounding pictures, and may be said to be in such cases symbolical; but as a general rule they were not so, and must be considered simply decorative features, which would have afforded but little satisfaction in themselves when deprived of the pictures to which they were the adjuncts.

The Romans, through the Greeks, adopted the acanthus almost exclusively. Their carved ornaments are always modifications of the acanthus: in the painted decorations the acanthus forms the ground work on which are engrafted representations of natural plants and flowers.

There is no form which has taken such deep root as this acanthus leaf, and this we think because it contains within itself all the true principles of ornamentation. The Romans, however, were limited in the use of it by the fixed law that each acanthus leaf grew out of another; but when this law was abandoned in the Byzantine period, it led to the formation of continuous scroll-work, which is so common in the MSS. of the twelfth and thirteenth centuries. The artists of the Renaissance, in returning to the acanthus, returned also to this law of its use; and, like the Roman, all their ornaments grew one out of the other.

In the ornament of the thirteenth century, again, there are but few typical forms. The most endless variety of combinations of foliage is produced by a repetition of trefoil and cinquefoil leaves, which have scarcely any particular relation to any natural plant, but being constructed on true principles are necessarily beautiful. In the later Gothic period, as a much greater approach to nature was attempted, a greater variety of types were used; but the ideal representation formed on a recognition of a natural principle was far beyond, in effect, the result obtained by the imperfect attempt at the natural. In violating consistency in the application, all true beauty was lost.

In the purely conventional ornament of the Oriental nations, it is still more remarkable how few are the generating forms.

The secret of success in every work of ornament is the production of a broad general effect by the repetition of a few simple elements: variety should rather be sought in the arrangement of the several portions of a design than in the multiplicity of varied forms.*

ON THE VARIOUS METHODS NOW BEFORE THE PUBLIC, OF INDURATING AND PRESERVING ARCHITECTURAL STONEWORK.†

The first patent for indurating and preserving stone which I shall notice was granted to François Teychenne, a foreigner, residing abroad: it is dated February, 1847: it afterwards became the property of William Hutchison. I believe the works are now carried on at Tunbridge Wells, and the patent belongs to the "Indurated Stone Company." In general terms the operation may be thus described. The stone to be indurated must be worked to the requisite form, then thoroughly dried in a heated chamber, or by some other convenient method. The solution, in which the stone is to be immersed, is composed of resin dissolved in turpentine, oil, wax, tallow, or other fatty substance: the materials are to be melted in a boiler of suitable size, and while they are in a state of ebullition the stones are put in, and the operation of boiling is continued until they are impregnated to a sufficient depth from the surface. In ordinary cases two hours' boiling will impregnate the stone one inch.

The next invention for a similar purpose, patented by Barnabas Barrett, is dated October, 1853: it is now worked in the name of "The London Stone-Hardening and Preserving Company:" their office was at 41, Moorgate-street. The following is Mr. Barrett's mode of procedure. The stones to be indurated are first completely worked to their required form, then placed in a chamber or oven, which is heated from 50 to 60 degrees, to drive out whatever moisture they may contain. In all cases where it is practicable, the stones are to be operated upon in an air-tight chamber, exhausted, or partially so, and then the indurating mixture, whether hot or cold, is allowed to trickle down or flow into the chamber to fill the vacuum; the effect of which will be that the liquid indurating substance will readily find its way into the pores of the stone, and become incorporated therewith. Mr. Barrett's indurating mixtures are classed under six varieties:—the first is composed of resin dissolved in naphtha, spirits of wine, or turpentine, mixed with gutta percha, dissolved in coal tar naphtha, and when warmed with steam heat, mixed with oil or any other greasy materials; after which "anti-corrosia" is ground down and well mixed with the above. Another mixture is composed of unslacked lime, with oil or soft soap, and Russia tallow, mixed with it whilst slacking; when well slacked, to be placed in a copper with alum water and "anti-corrosia," ground-up copperas and a solution made from potatoes and beer settlings: when well boiled and mixed together, they are left to settle, and the solution is drawn off. These various preparations are rather complicated: I will, therefore, not occupy more time by going further into Mr. Barrett's inventions.

The next patent for the same purpose, granted to John Benjamin Daines, is dated April, 1856. The specification describes the invention as "An improved mode of treating surfaces of soft and porous stone, &c. for the preservation of the same from decay." Mr. Daines's chief object is to impart to the exterior surfaces of stone or compo buildings, the power of resisting the destructive effects of the atmosphere and of damp; and in some measure to neutralize the tendency to alkaline efflorescence. To produce these results, he first applies a solution of sulphate of zinc or a solution of alum; after which, sulphur dissolved in linseed or other oil. This mixture is to be laid on the surface of buildings, or building materials, by the aid of a brush, or by means of an exhausted case applied to the wall of the building, or by any other suitable means: the stone will then be impervious to moisture.

Mr. Henry Clinton Page took out a patent, dated May, 1856; part of which is for "indurating common stone work generally:" for this purpose he dissolves bees'-wax in coal-tar naphtha. But if the colour of the stone be very delicate, or the preservation of its natural colour be desired, Mr. Page substitutes double distilled camphine in place of the coal-tar naphtha, and white wax instead of common bees'-wax. The solution is to be applied with a brush to the surface of the stone, repeating the process as often as the stone will absorb it, and until the pores are completely filled therewith; using the solution thicker for coarse grained than for fine grained stone.

Having given an abstract of four distinct patents for attaining the same object, I will now endeavour to give a general view of the mode of operating, and of certain practical difficulties attendant thereon. Every one practically acquainted with the working of stone, whether as a mason or a carver, must be well aware of the time occupied, and of the liability to damage incurred in removing heavy masses of elaborately wrought stone after the work is finished; and that the risk of injury or breakage is far greater with soft than with hard stone. In several of the patented inventions, it is expressly stated that the stones, after being completely worked, are to be thoroughly dried in a hot-air chamber, or oven; and in one instance it is stated, they are afterwards to be put into a tank of boiling solution, and boiled for several hours; in another method the stones are to be put into an air-tight chamber, exhausted, or partially so, and then filled with the indurating mixture, either hot or cold. I need scarcely state that it is an utter impossibility to exhaust, even partially, a vessel capacious enough to hold the largest stones that are generally used in a first-class building. The failure of the atmospheric railway, on the Croydon line, arose entirely from the impracticability of exhausting large vessels, as it was found impossible to make them anything approaching to air-tight. If the stones are to be completely immersed in the indurating mixture, there will be great waste, as no other part than that which is to be exposed to the weather need be indurated; in fact the joints, beds, and back being covered with an oily or resinous substance, will prevent the mortar or other aqueous cement from adhering properly to the stone; and the result must be a certain amount of weakness in a building so constructed.

Among the writings of various patentees I find the remarkable statement, that "the process gives to the most porous stone the hardness of primitive granite." It will be unnecessary to expatiate on this imaginary result: we will look upon it as the infatuation of a parent for his offspring. The same patentee attributes the decay in stonework to alkaline efflorescence, arising from the cement or mortar used in the walls: he has arrived at this conclusion after a variety of tests and trials during eleven years. These are assertions, but no proofs are offered. The gentleman has no doubt seen many examples of stone in an advanced state of decay, covered with a saline or alkaline efflorescence; but is he prepared to show, by experiments, that the same stone would have remained perfectly free from disintegration, had it been situated far from the influence of what he conceives to be destructive agents? I have submitted a piece of limestone, which I know to be of a good and durable quality, to the most severe tests of both salts and alkalis, trials far more powerful than anything likely to occur to stone in the ordinary course of nature, yet with all such violent experiments, I have never been able to produce more than a mere trace of alteration or disintegration; I am therefore disposed to believe that the salts and alkalies have little or nothing to do with the decay of stone. Among the published writings of patentees I find also this remark: "In many cases the decay of stone is accelerated by the employment of sea or salt sand; a proof of the destructive effects of salt upon stonework may be observed in any seaport town." No doubt the author has observed stonework in some seaport towns in a deplorable state of decay: many of the buildings at Brighton, constructed with Portland stone, are in this condition: but we have no "*proof*" that such decay is occasioned by

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* To be continued.

† Continuation of the paper read by Mr. C. H. Smith, at the ordinary general meeting of the Royal Institute of British Architects, December 1st. See page 672, *ante*.

marine influence. The surface of the masonry of most of the buildings at Oxford is so decomposed, that it is peeling off like paper or rags. Had this beautiful city been erected with the same stone, on the sea coast instead of the interior of the country, many might have imagined that the wretched condition of the stonework was entirely owing to the destructive effects of sea salt, whereas it is the result of bad stone.

The Island of Portland is only five or six miles in circuit: of course it is surrounded on all sides by the sea: it contains seven villages, all built with Portland stone, and they are in an excellent state of preservation. But the most remarkable instance, which proves that sea salt has no effect whatever on good stone, is that of Sandysfoot Castle, near Weymouth, built with Portland stone in the time of Henry VIII. It is so close to the sea, that every high tide washes the lower part of the walls, and in stormy weather the building is completely overwhelmed by the spray, yet the stone is quite perfect, and the chisel marks are as fresh as when left by the workmen. The fact is, *good* stone will remain nearly perfect in any situation, during almost an indefinite period; whereas *bad* stone, if exposed to the weather, will rapidly moulder away, whether placed on the sea shore, or in the middle of a large continent. The four patents which I have described, may be classed under one general heading, because they all recommend oily or resinous mixtures to be applied to the stone in a somewhat similar manner.

I have one more invention for a similar purpose to offer to notice, which has been reserved on account of the indurating mixtures being of an aqueous and more scientific character, and therefore differing essentially from any of the others. The inventor, Mr. Frederick Ransome, has sent me the following particulars: "The process consists in the employment of two or more separate solutions, which, by mutually acting upon each other, produce within the pores of the stone an indestructible mineral precipitate. In operating, the stone may either be immersed in, or saturated on the surface with, a weak solution of silicate of soda or potash; and afterwards with a solution of chloride of calcium or barium, when an insoluble silicate of lime, or baryta, is formed in the pores of the stone, rendering it impervious to moisture and insusceptible of injurious effects from atmospheric influences. Or instead of a silicate of potash or soda, a solution of sulphate of alumina may be employed, and then, by an application of baryta, a compound of sulphate of barytes and alumina is produced."

Any of the before-named mixtures, whether oily or watery, will readily be absorbed into the pores of a newly worked piece of stone; but after a building has been erected a few years in London, or any other large town, its surface becomes so thoroughly grimed with dust, soot, and impurities of a populous neighbourhood, assisted, in no small degree, by powerful winds and driving rains, that the indurating mixture cannot easily be made to soak in; it will run off the surface of the stone as it would off glass, or other non-absorbent material. But if, by some contrivance, it can be made gradually to enter within the pores, if the building should have been erected only a few months, the dirt will be so difficult to remove, that a large portion of it must unavoidably be mixed with the indurating materials, and the result will be a dirty, disagreeable appearance, permanently given to the entire edifice. Were it not for the soot and dirt, the oily mixtures applied to limestone would be so far blanched in about a year, as to cause the stone to be rather whiter than if no such process had been applied to it. To overcome these objections, some have suggested that the entire surface of the stonework should be scoured, scraped, or even chiselled afresh, in order that the indurating material may have uninterrupted access to the substance of the stone. This proceeding would not only be very expensive, but it would be liable to alter the character and effect of the mouldings, carvings, and decorations generally; and as the projecting parts are usually the first to show symptons of premature decay, they would therefore require the greatest amount of induration. Unless the indurating fluid can be made to soak into the stone at least half an inch, it may be worse than useless; because, in all probability, wet will get in behind the hardened surface, and thereby occasion larger portions to exfoliate than if the stone had been left in its natural state.

I may now offer a few comments on the manner of testing the merits of these patented inventions. You have already heard mentioned some extraordinary contrivances of air-tight chambers, and baking and boiling building stones to render them imperishable: such performances, upon samples like those shown to me by the patentees, are quite within the bounds of possibility; but it would be a novelty to see the Parliament Houses first placed in an oven and then in a tank of boiling liquid. If, therefore, the desired object cannot be effectually accomplished by such means; if the stones cannot be properly protected from the effect of atmospheric influences, without treating them in the manner described, the inference must be, that if a building is merely brushed over a few times with a cold solution, the result will certainly be ineffectual: if the former plan be a sure one, the latter must be very doubtful. Taking all circumstances fairly into consideration, I am of opinion that no plan for indurating and preserving architectural stonework is likely to answer the intended purpose, unless it can be applied after the building is erected, and after the mouldings and carvings are completely finished. Then comes the question, how to know what is the best material, and how is it to be successfully applied. I have seen multitudes of small specimens of indurated stone, which, while fresh, certainly resist the decomposing influences of air and water; but as the patentees and inventors offer no proofs whatever that the same or such pieces of stone would have rapidly mouldered away, had they not been preserved by their indurating process, how am I know that the same pieces of stone would not have stood the weather equally well without their application?—and I believe, up to this time, no one is prepared to show what condition their specimens will present after eight or ten years' exposure to the weather. I am not disposed to listen with credulity to the opinions or testimonials of individuals, however high their position—however numerous the Roman capital letters may be at the end of their names—unless they have something to relate and to show upon the subject of a more evident and satisfactory character than anything I have heretofore heard or witnessed. No doubt some may consider me captious, over scrupulous, and determined not to believe what I either see or hear; but the *weekly list of patents*, which are taken out for supposed inventions or improvements, most of which are neither seen nor heard of afterwards, shows how many men there are, who, although they do not always deceive other people, are often very successful in deceiving themselves, by believing they have discovered an invention, of great public utility, which is to "*yield* 200 *per cent. profit*," and which golden prospect their fondest admirers can neither see nor comprehend.

It would be a good plan to try the conservative power of a solution on two or three specimens of stone—Caen, Bath, and Portland for instance—choosing pieces of their respective kinds, well known to be of a perishable quality, I am sorry to say that in London there will be no difficulty in procuring such specimens; each piece to be between 2 and 3 feet long, and of sufficient girth to be accurately worked into a few mouldings, such as a piece of cornice. When the working is completed, let each piece be broken (not sawed) in the middle lengthwise, so as to leave clean fractures, with abundant indentations; the two parts will fit each other, without the possibility of either being counterfeited. Let only one piece of each specimen be well prepared with the indurating solution, taking care not to use more or less of the fluid, in proportion to the size of the specimen, than would be used if a large edifice were to be prepared for conservation; then place the prepared and unprepared specimens of each kind of stone side by side, on the top of some elevated building, where they will be fully exposed to all weathers, during several years, more or less according to circumstances. We know beforehand that in course of time the unprepared pieces will show evidence of decay; but if the indurating process answer the intended purpose, if the stones have absorbed the fluid sufficiently deep from their surface to be the means of rendering them durable, the prepared portions ought to be found after a few years unaltered, and comparatively in a perfect state, while their counterparts, having been subjected to precisely the same variations of climate, would perhaps be in an advanced stage of decay, and their architectural features nearly obliterated. Experiments thus performed and recorded would be valuable, because they would prove, as nearly as possible, whether eventually a certain process might be serviceable or useless, or indeed injurious to the stone-work.

During the last twenty or thirty years I have had many conversations with several of the most learned chemists about preserving stone from decay, and have listened with attention to the remarks of intelligent and experienced practical stonemasons, for much gold is sometimes contained in the roughest ore; and a clear operative mechanic, though incapable of expressing clearly that which he conceives in his mind distinctly, will, by judicious questioning, state facts, likely to lead the studious man into a train of ideas which he otherwise might not have thought of: but after all, the object in pursuit seems to be as far off as when I commenced the inquiry: in truth, some years ago I thought I knew more of the subject than I do at present, the difficulties appearing to increase as more information is collected. All the methods of induration which are now before the public are merely mechanical mixtures with the stone, a sort of fluid cement or varnish, which surrounds the grains without altering them, although to a certain extent it glues them together, and partly keeps out moisture: but each individual grain continues in the same state, no chemical change whatever has taken place, the elementary constitution of the stone is the same as it was before the indurating material was applied to it. It is a characteristic feature in quarries of oolite that the stone procured from the uppermost beds is generally, perhaps invariably, of a durable quality; whereas the lowest beds are the first to decay, when exposed to weather. The cause of this difference is known to depend chiefly on the quantity and quality of the cementing substance, by which the particles adhere to each other. The cement that unites the globules into a mass is formed of the same elements as the globules themselves, but more crystalline: it is in fact the decomposition of the superincumbent mass, saturating and crystallizing within the beds beneath. But this natural process of indurating is not performed in a day, nor in a year, but in ages: so slow or gradual is the progress, that in scarcely any case is the lowest bed so hard, or so thoroughly saturated with the crystalline material, as those above.

It seems to me, that if we could pursue, or imitate this natural process, it might lead to the best means of improving the natural condition of soft stone; or, in other words, we might finish the stone which is imperfectly formed in the rocks; Nature not having had time to complete her work. Man can command Nature in no other way than by obeying her laws: in all our experiments or performances, it is not we who operate, but the laws of Nature which we set in operation. The durability of compact carbonate of lime, in a crystalline state, either in the form of stalactites, or that of a porous material, rendered dense and durable by impregnation, may be witnessed in numerous instances in this country, especially in the petrifying caverns of Derbyshire. In the South of Italy and in Sicily, the production of excellent building stone, entirely formed by deposition from water, has been going on abundantly, from the earliest ages of the world to the present time. The Temples of Pæstum, constructed more than two thousand years ago, with aqueous deposit from the neighbouring rivers, are still but little decomposed, so far as the stone is concerned. Most of the modern buildings in Rome, including St. Peter's, which are constructed with a similar material, Travertine stone, or Calcareous Tufo, are generally in excellent condition.

In the waters which produce these petrifactions, there must be some solid body as a nucleus to begin upon, but what constitutes it, is in no respect important; any substance will do for the waters to commence their petrifying works upon; hence, at the caverns, "the wonder seeker" is invited by the guides, to purchase birds'-nests, purses, and various other articles, said to be changed into stone; whereas, in fact, the objects themselves are merely encrusted with stony matter. Although this natural process is progressing now, and has been during all ages, and, to a certain extent, is well understood by chemists and others, yet it has not been applied to any important purposes, and certainly never to artificially indurating and preserving soft stone. If we could successfully imitate nature in this respect, and apply our efforts to the purpose now under consideration, I think they would be more likely to answer than any plan heretofore attempted. It is not in my power to tell you how to proceed, but the principle appears so clear and simple, that I am induced to believe the proper mode of application would soon be found, if scientific men would turn their attention in that direction.

The necessity for preserving the stonework of our buildings from premature decay is entirely an evil of modern date, which, in nearly all cases, ought not to exist; for if builders engage in a legal contract to use the best materials of their respective kinds, they are liable to an action for damage, if it can be proved that defective stone has been introduced into a building; as such a proceeding must be an imposition, if not a direct fraud, upon those who have to pay for the work. And I believe I am correct in stating, that pleading ignorance of the laws of this country is not considered an excuse for the violation of those laws; and that therefore, in all probability, a verdict would be given against the contractors.

With reference to the proceedings for indurating the stonework of the new Palace at Westminster, I fear the parties in authority are rather premature in their decision. Several experimenters have been set to work without investigation or inquiry; without ascertaining what plan is best, or whether their mode of procedure may or may not be injurious to the stonework, or likely to prevent the success of some other treatment which may hereafter be found superior. With every sentiment of respect for the judgment and general discrimination of the noble and learned lord who has lately taken so much interest in this matter, I trust he will forgive me if I entertain the idea that his lordship has yet much to learn before he can properly adjudicate and decide on matters relating to the decay and preservation of stonework at the Parliament Houses.

If there ever was a time when a knowledge of good and bad stone was of considerable importance to the British public, that time is now arrived. Our Government is contemplating the covering of more than twenty acres of ground at Westminster, with official buildings of a palatial character: it is therefore to be hoped that the subject of our attention this evening will apply only to the times past and present, and that in future, when a magnificent structure shall be completed, the external masonry may remain unimpaired during the lives of those who were at the cost of erecting it, without the expense and annoyance of scaffolding, saturating, discolouring, and many other vexatious incidents attendant on the endeavour to make the best of a discreditable affair.

At the close of the paper, the chairman, Mr. Ashpitel, said he believed that, as architects, they might consider it their own fault that stonework so often failed, as it was conceded that England had as good stone as any country in the world. Perhaps the first cause of failure was the want of sufficient care in selecting stone. He had noticed the care taken in this matter in the restoration of Southwell Minster: it was well known that there were in all quarries both good and bad beds of stone, and the selection should be made in the quarry itself. The durability of St. Paul's Cathedral might be ascribed to the precaution taken by Sir Christopher Wren, who, as soon as the stone was quarried, had it exposed upon the seashore for three years before it was used. This could hardly be termed seasoning, as stone was a very different kind of material from wood; but the effect was that, after exposure to the weather, the perfect blocks were easily distinguished from the defective ones, and only those which had stood the weather well were worked. He had been told that Sir Robert Smirke took a somewhat similar precaution at the new Post Office. Unfortunately, few masons or clerks of works understood the bed of the stone; as, in addition to the oolite construction of some stones, pointed out by Mr. Smith, every kind of stone in England, excepting Portland, had the further characteristic of a visible cleavage or bed, and if placed in a building on its wrong bed, the stone would not stand. This was the principal cause of the failure of many buildings of Bath and Caen stone. Granite when improperly bedded, failed from the decomposition of the feldspar, and, in some parts of Waterloo-bridge, the stones appeared as if gnawed into by the weather. From some experiments made by Mr. Freeman, it appeared that in Portland stone there was not any visible bed or cleavage. The workmen were commonly in the habit of turning about the blocks of Caen stone in order to find the bed,—the softest side being the under-bed. He quite agreed with Mr. Smith that alkalies would not injure stone, but they all knew that acids did to a great degree, and consequently the sulphurous acid in the London atmosphere had a corroding effect upon stonework. Mr. Smith had not referred to the method of preserving the monuments in Westminster Abbey adopted by Mr. Gilbert Scott, the architect to the fabric. Some of these were of Purbeck marble, and in a sad state of disintegration. Mr. Scott was so careful of these monuments that he would hardly suffer a brush to touch them: but in order to keep the body of the stone together, he directed a solution to be made of the most colourless lac and spirits of wine, and the dust having been blown from the surface of the stone with a large pair of bellows, the mixture was applied by means of a garden syringe with a fine rose. How long this method would prove effectual he could not say, but as it was very cheap, and did no injury whatever, it was worthy of attention.

Mr. Burnell read a communication from M. Viollet-le-Duc, describing the process of silicatization adopted by him at Notre Dame, Paris. Mr. Burnell added that he had been over the works at Notre Dame, where M. Viollet-le-Duc pointed out to him the experiments he had made. He had himself tried the process at St. Luke's, Chelsea, where the stone had become very hard indeed. He had also broken up and powdered some Farley Down Bath stone, and mixed it with the silicate of potash, and, when that was absorbed, he silicated the mass again. This was two years ago, and recently he boiled a portion of the composition in water for an hour, and could not discover that it discharged any salt. He again boiled it in a solution of potash, and could not discover that the mass was altered, or that there was any free silica; thus proving, as he thought, that the silicate of lime was formed. He agreed with M. Viollet-le-Duc that the success of the process depended upon the stone upon which it was tried: the great mistake in the experiments which had been made at the House of Lords two years ago, was that they took place in the month of November, when the stone was so damp that it could imbibe nothing, and, consequently, the experiments could not succeed. Mr. Smith's impression was that one application of the process was sufficient, but, on the contrary, it was essential that it should be done day after day; that the superfluous salt should be all washed out, and a sufficient quantity of silica introduced to form, with the lime, an insoluble material,—the silicate of lime.

FOREIGN ART-NEWS.

Chateaubriand's Tomb.—There are persons who consider the late vicomte the last of the French classics and original writers. The idea of his grave partakes certainly of the latter character. It has been scooped out in the granite rock of the seashore of St. Malo, in Britanny, and the cover, of the same stone, presents, like the gigantic cross above it, a huge mass seen landwards at a great distance. Chateaubriand intended that this rock-monument should last for ages, but a few equinoctial spring-tides threaten it already with utter destruction.

Paris: Programme of the next Art-Exhibition.—The Secretary of Public Instruction has issued the following programme:—The annual art-exhibition to take place on the 15th of June instead of the 25th of March as hitherto, and to last two months. There will be awarded three classes of medals,—one of 1,500 francs, one of 500 francs, and one of 250 francs. For painting, will be awarded three medals of the first-class, six of the second, and twelve of the third; for sculpture, two medals of the first-class, four of the second, and six of the third; for engravings and lithographs, one medal of the first-class, two of the second, and four of the third; for architecture, one medal of the first-class, two of the second, and three of the third. A great honorary medal of 4,000 francs will be awarded to the young artist who shall have produced the most striking work in any department of the fine arts. The entrance will be one franc on week-days, but every one will be admitted *free* on the day of *rest*, Sunday.

Cologne Art-Union.—The purchase of pictures for distribution to the members this year, began on the 12th inst. A very fine painting by Christian Köhler, "*Gretchen am Spinnrard*" (Goethe's Faust), was purchased for 175 Frederics d'or,—a high price in Germany.

THE HOTEL POURTALES, PARIS.

The Hôtel Pourtales, built by M. Felix Duban, is less remarkable for its size than for the taste which pervades the details, the harmony of the whole, and the convenience of the interior arrangements. Its distinctive character consists in a happy union of the style of the Renaissance, which predominates in the general lines and all the architectonic dispositions, with a style that is Greco-Pompeian, and which appears only in the details, whereby they are refined, and the decorations, often in the architecture of the sixteenth century a little small and too often repeated, are made more firm and dignified.

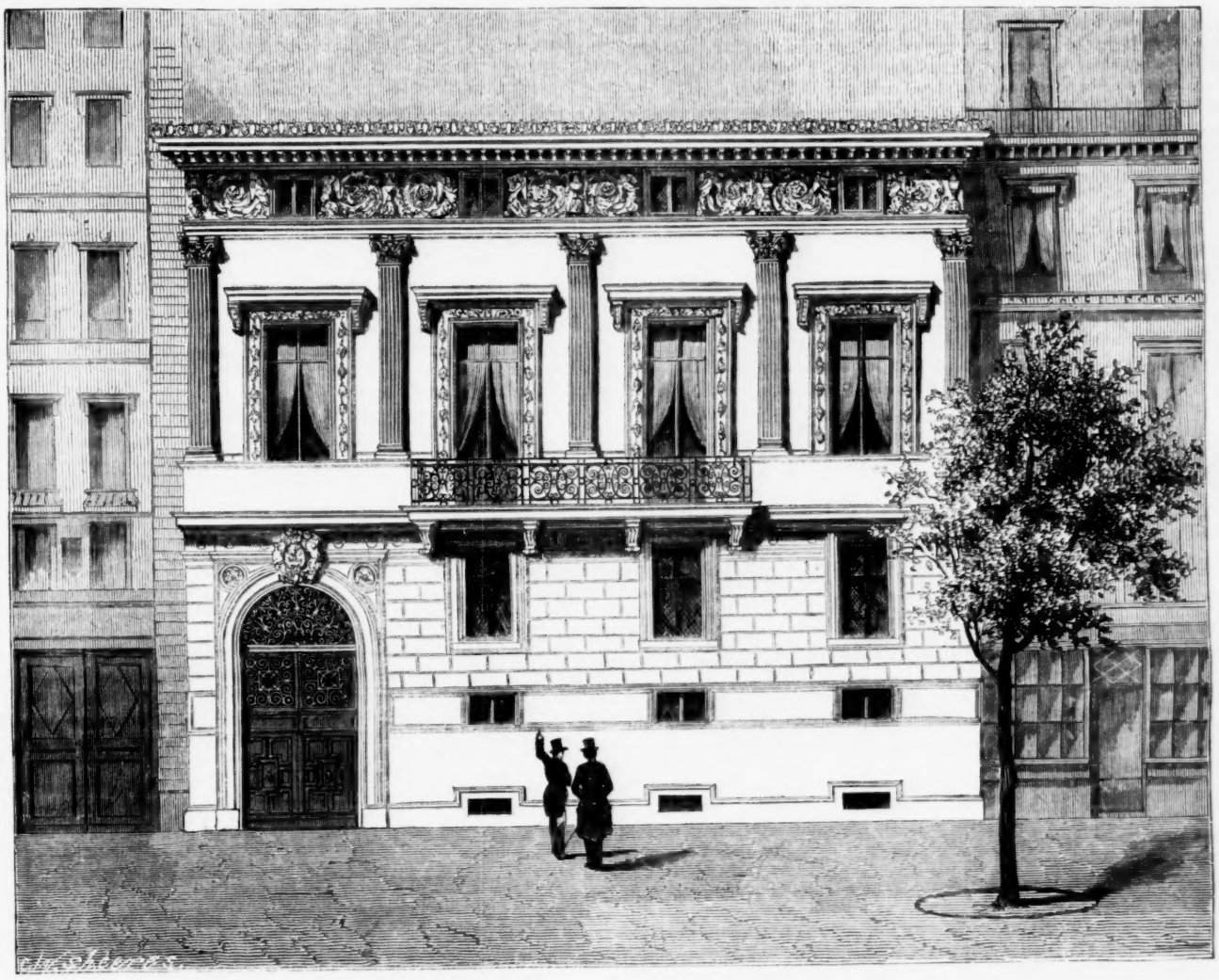
The entire edifice, by its general simplicity, judicious ornamentation, and the perfect carrying out of the details, makes itself remarkable in the midst of the numerous specimens of architecture called Renaissance (so twisted in outline, so confusedly overloaded with details of bad taste, in equally bad workmanship), that the last twenty years have seen raised under the sun of Paris, and it remains in the opinion of artists as one of the most satisfactory productions of the day in that city.

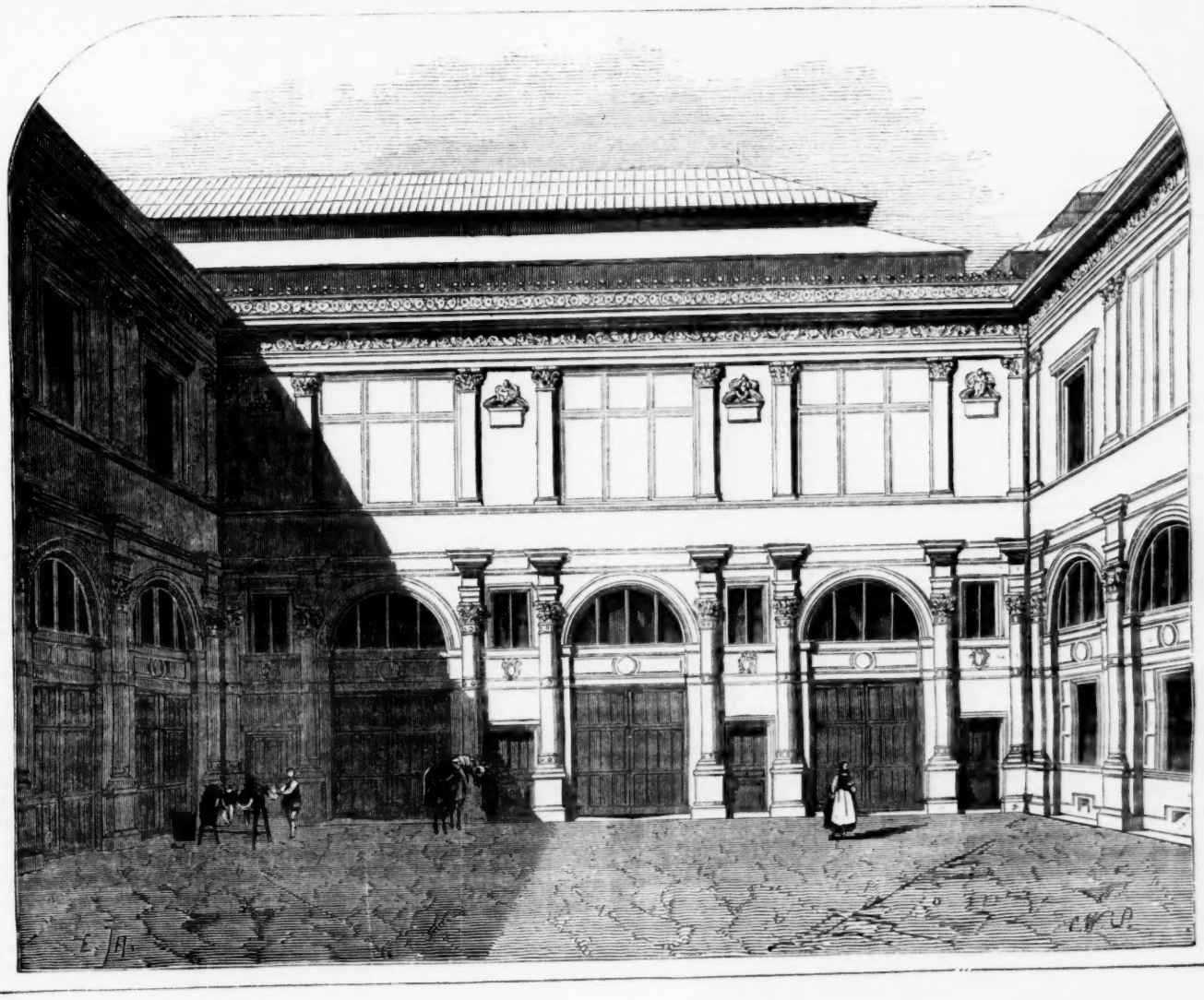
The Hôtel Pourtales is constructed rather to form a museum than to serve as an ordinary residence. The interior contains several cabinets of curiosities, a Gothic chapel, and a gallery, worthy of the remarkable pictures deposited there. The walls of the portal leading to the courtyard are decorated with statues and antique remains, to the number of thirty-two, among them being a statue of the Emperor Augustus, formerly belonging to Cardinal Richelieu. In the vestibule there are thirty-eight works of art, of the finest description, in the shape of bas-reliefs, busts, and statues. The staircase, which leads to the gallery, is equally adorned with statues and busts. The gallery contains about 200 paintings, of all schools; including "The Virgin and Infant Jesus," by Leonardo Da Vinci, a very fine picture brought from the Palace of the Escurial; "A Portrait," by Antonello de Messina, stated to be one of the first painted in oil in Italy; "The Virgin and Child," by Palmi the elder; "A Magdalen," by Guido; and a "Crown of Thorns," by Titian, besides several by Allori, Andrea del Sarto, Carlo, Dolci, the Carracci, Holbein, Albert Durer, Quentin Metsys, Velasquez, Claude Loraine, Greuze, and others.

THE CONDITION OF TURNER'S PICTURES.

We have made no observations on the position in which the pictures left to the nation by Turner have been placed at Marlborough House, injurious as it is to the fame of the artist, and tantalizing to the public. This probably is the result of necessity, and may be remedied presently. But surely some inquiry should be made into the cause of the evident deterioration of some of the pictures. All who are acquainted with the works of this great master, and know the delicate gradations of colour which he achieved and gloried in, will look with astonishment and pain at some of the pictures now hung, and would feel convinced that some recent agency must have been in operation. We know that this opinion is held by more than one of the Royal Academicians, and we make these remarks in the hope of inducing some explanation.

THE HOTEL POURTALES, PARIS.—MONS. F. DUBAN, ARCHITECT.—*Street Front; and View of the Court.*





THE DISPOSAL OF SEWAGE.

THE *Builder* has good reason to recollect, and equally good right to recall, the time when endeavours to obtain an audience on such a subject as this, or to excite any general or abiding interest in it, was up-hill work indeed. The contrast between such a state of matters and the present is highly gratifying. The great questions of drainage and the disposal of sewage are now fermenting in the public mind, and ere long it is to be hoped will settle into some clear and definite course. The Government, as a climax to the present stir on the sewage manure question, intend, it appears, forthwith to appoint a scientific commission to inquire into the whole subject of the disposal of sewage, deodorization and solidification of sewage, irrigation by liquid sewage, &c. and to report to the Government with as little delay as possible on the whole question. A numerous, and evidently highly interested meeting and important discussion, at the Society of Arts, took place on 10th instant, when a paper was read by Mr. W. Fothergill Cooke, "On the utilization of the sewage of towns by the deodorizing process established at Leicester, and the economical application of it to the metropolis." Mr. Chadwick, Mr. Mechi, Mr. Rawlinson, Mr. Lawes, Dr. Letheby, Dr. Copeland, and various other gentlemen, took part in the discussion; and Dr. Lyon Playfair occupied the chair. Mr. Cooke pointed out, not only what had been done at Leicester, but the decided decrease of mortality and lengthening of life there from the sanitary improvements effected; and urged the merits of the local deodorization principle, and the resultant clearing of the Soar water, as applicable to the metropolis. His object, he remarked, was, "to represent the great facilities for, and advantages in, deodorizing the sewage matter of the metropolis before putrescence is in full activity, and the restoration of the water, either in a pure state to the river, or the use of it after deodorization, for the purposes of inoffensive irrigation. That the sewage water," he continued, "can be sufficiently deodorized and purified by lime alone, without causing the slightest nuisance, is a great fact, and I can see nothing but prejudice or penuriousness that can prevent its adoption." In course of the discussion which followed, it was urged that lime did not precipitate or retain the valuable ammonia of the sewage (an alleged vehicle of infectious matter, too), and that, in fact, the Leicester compost bricks were nearly valueless. In reply to this assertion, Mr. Cooke stated that it at all events paid for the cost of preparation, and it must be admitted (we may here interject) that *profit* is not the final, or, indeed, essential point in the question. Were it possible, by properly solidifying the sewage of towns, to get more easily rid of it by shipping or carting it off, and pitching it so condensed into the sea, a great end would be gained. The declension of the assumed great value of solidified manure, from a couple of pounds a ton to as many shillings, is certainly a damper to the idea of converting the sewage of every town into manufactured manure; but farmers have already declared such manure to be useful; and Mr. Cooke stated in his paper that, though slow in appreciating its value, contrasted with the strong and potent guano, above a thousand tons had been taken by the farmers at Leicester during the very week then just past, and that not only had further applications for it been made—at a very low price to be sure—but its value for "nitre-beds" was beginning to be appreciated, and this alone would open a wide field for its employment. The declension of assumed value is no more than we long since anticipated. As to the fact that lime used as in Mr. Wicksteed's process at Leicester does not fix one of the most valuable ingredients of the sewage, this, too, we pointed out; but still, however desirable it may be to correct the chemical deficiency, the final purpose, as we have said, is not necessarily the return of a positive profit on the disposal of the sewage manure. But we are much mistaken if this defect in the Wicksteed patent cannot be readily amended. Common earth—especially clayey soil—is well known to be a most efficient *deodorizer*, when manure or rotting organic matters are put into *it* or under it: why should it not be so when *it* is mixed with sewage itself? It is rather strange that, while Mr. Mechi, Mr. Chadwick, and others, were pointing out the former of these well-known facts, the latter did not suggest itself in course of the same discussion. A clergyman at Wakefield not long since discovered that *clay* fixed the ammonia, and other contaminations in gas, in a way that lime could not, or did not do. A mixture of *lime and clayey soil*, therefore, would appear to constitute a very hopeful as well as economical and cheap deodorizer, fixer, and precipitater of the valuable ingredients of sewage. The general value of the product may yet be still further enhanced by the mixing of the smoke of furnaces, &c. with the sewage, as adopted at Mr. Cubitt's works, and more than once treated of as a feasible idea, though not immediately practicable to any extent, at least as regards the sending of house smoke into the sewers, mixed with or precipitated and solved in water. Carbon is itself a potent deodorizer, and an essential ingredient of all vegetation; and the carbonic acid of the smoke would unite with the ammonia of the sewage, and render it at all events much less volatile, though still soluble in sewage water.

CHURCH-BUILDING NEWS.

Newark.—The first stone of the new church schools about to be erected in connection with Christ Church, Newark, was laid on Tuesday in week before last, by the Duke of Newcastle. The new school, the site of which (in Portland-street, close to the existing school) is the gift of the Duke, was required for the accommodation of the infant and female scholars, and, when completed, it is expected that about 500 boys and girls will be enabled to receive instruction, in accordance with the established principles, in the two schools connected with Christ Church. The design is Tudor Gothic. The building will consist of an infant school-room on the ground-floor, 44 feet long and 30 feet wide, having a class-room in connection with it 15 feet square. The girls' school will be over the infants' school-room, and of the same dimensions, with a class-room as on the ground-floor. The principal front of the building will be next Portland-street, and will consist mainly of three compartments, so divided by buttresses springing from the fence wall to the wall of the building, with open arches beneath, as to have the appearance of flying buttresses. The spaces between these buttresses will be filled in with an ornamental wrought-iron railing. The materials are to be of brick, with Ancaster stone dressings, and the interior finishings will be varnished upon the natural grain of the wood. The roof is open-framed, and will be covered with green Westmoreland slates, cut pattern and laid in bands, finished with a wrought-iron ridge. The cost of the building will be something under 1,000*l.* Mr. Charles Baily is the architect.

Ely.—The altar screen of Ely cathedral having been opened to the choir, a memorandum relating to it has been placed, by way of record, upon the chapter books, stating that Mr. John Dunn Gardner, of Chatteris, in the Isle of Ely, has caused to be constructed, at his own cost, the whole of the central reredos above the alabaster string course, including the sculptures, mosaics, and other decorations, some of the most important of which were suggested by himself, and executed under his own immediate superintendence. This work was designed by Mr. Gardner as a memorial to his late wife. The other parts of the altar screen, as well as the altar steps and pavement, the altar tomb upon which the effigy of Bishop Northwold rests, the restoration of the last portions of Bishop Hotham's tomb, &c. have been constructed at the expense of the Dean and Chapter. The whole of the sculptures for the altar screen and other works in the choir have been executed by Mr. J. Philip, of London; the stone, alabaster, and wood carving, by the late Mr. Rattee and his successors at Cambridge; the mosaic and encaustic pavements by Messrs. Minton. These works were designed by Mr. Scott. Mr. George A. Lowndes, of Trinity College, Cambridge, gave the iron screen and gates, executed after a design by Mr. Scott, which is placed at the entrance of the south aisle of the choir; and the Rev. Professor Selwyn, Canon, presented the font, placed in the south-west transept, hereafter to be used as a baptistery. The Rev. Chancellor Sparke, Canon, contributed a painted window—the third from Bishop West's Chapel in the south aisle of the choir,—by M. Lasson, of Paris, the subject being the history of John the Baptist. Mrs. Maddy gave a painted window—the second from the west end of the north aisle of the nave,—by Mr. Preedy, of Worcester, the subject the history of Job. The Rev. W. G. Townley, Rector of Upwell and Welney, Norfolk, gave a painted window by Mr. Wilmshurst, placed in St. Catharine's Chapel, after a picture by Bassano, representing the Baptism of our Lord, in the possession of Lieutenant-Colonel Pratt. The Rev. Professor Selwyn gave a painted window, also by Mr. Wilmshurst, which is placed in the same chapel, after a picture by Overbeck, the subject being from the text, "Suffer little children to come unto me, for of such is the kingdom of Heaven." This is the forty-third painted window which has been placed in the cathedral in little more than ten years. A slab of Alexandrine mosaic, to be placed upon the grave of Bishop Allen, has been presented by his son, the master of Dulwich college: an effigy of the late Dr. Mill, canon of the church, placed upon a highly-enriched altar tomb, and surmounted by a hearse, is also in preparation; and an iron screen and gates, the gift of the Dean, for the entrance of the north aisle of the choir, similar to that presented by Mr. Lowndes for the entrance of the south aisle, is likely, according to the *Cambridge Chronicle*, to be completed in the course of a few months. The painted glass for the east windows, for which the late Bishop Sparke gave 1,300*l.* and which has been in preparation for so many years, is likely, says the same paper, to be finished in a few months. Two windows, one the gift of the Judges who have been educated at Cambridge, and the other of lessees of the Dean and Chapter, are preparing for the north aisle of the nave: the bachelors and undergraduates of the University of Cambridge are now taking active measures for finishing the great north-east window of the lantern; whilst the design is in forwardness for the south-west window of the same lantern, to which the Queen and Prince Albert have presented their portraits: this window will contain, like those already executed, eight figures as large as life, four in the upper compartment, and four in the lower. A pavement has been put down in St. Catharine's Chapel. It is a combination of Purbeck marble, encaustic tiles, and borders of incised Portland stone, the incisions being filled with coloured cement. Back screens of an enriched character, to mark the stall work of the northern aisle of the choir, are in course of construction: similar screens will be erected in the south aisle. The Dean and Chapter desire to carry out the remaining works of their new choir in the same style as in those already finished.

Coventry.—West-Orchard Chapel, Coventry, has been re-opened, after undergoing considerable alteration. The chapel has throughout been put in a state of repair, and many parts have been entirely rebuilt. The front is altogether new. The whole of the interior fittings are new, and the pews are low and open. Cast-iron pillars support the galleries, the fronts of which are ornamented with open coloured metalwork. The windows are bordered with stained glass. The roof, which is ceiled, is supported by beams of coloured timberwork, and in its centre there is a sunlight of gas-jets. Means of ventilation are provided, and the place is warmed throughout by a hot-water apparatus. The plans were drawn by Mr. Mault, and the work has been executed by Mr. George Taylor.

Liverpool.—The Roman Catholic Chapel of the Immaculate Conception, just completed in connection with St. Edward's College, Everton, has been consecrated. This chapel has been built as a lady chapel to a cathedral, the designs for which have been furnished by Mr. Welby Pugin. It is to be dedicated to St. Edward, and serve as a parish church. Its form is that of a cross, having a choir and side aisles. The choir will be about 100 feet in length, the interior of the edifice to be lighted with clere-

story windows. A transept will divide the choir from the other part of the edifice, and a large ornamental window is to be introduced at the eastern end. The portion just completed will be appropriated as a private chapel for the dean and canons. It is 40 feet square, having side aisles and other requirements. A range of cloisters, at present of a temporary construction, connect the chapel with the college. The building is in the Pointed style of architecture, and constructed of rustic masonry, a finer description of stone being employed for the facings and dressings. The sanctuary, altar, &c. are ornamented, and the seats are of pitch pine, carved. The contractors for the building are Messrs. Baynes and Son, of Liverpool.

Preston. — A new font has just been placed in the parish church. It is the joint gift of three surviving daughters of the late Mr. Edward Gorst, of Preston. The font is of Caen stone, and is in the Gothic style, of fourteenth century. The bowl, on the upper portion, is octagonal, each face ornamented with a quatrefoil panel, bearing, in the centre, alternately, a bas-relief of the emblems of the four Evangelists: an angel at each corner, appears to bear up the bowl. The stem has eight shafts of Dent marble, inserted against the stone. The work was done by Mr. W. E. Jackson, of York, from designs furnished by Mr. Paley, of Lancaster, architect.

PROVINCIAL NEWS.

Lynn.—The town-council of Lynn recently referred to the ratepayers the question whether an Act for a new and constant supply of water should be applied for. A public meeting of ratepayers was accordingly held last week, when it was stated that the estimate of Mr. Stephenson, C.E. for the works, was 7,200*l.* The total cost would be 10,000*l.* besides the expenses. The meeting was a rather stormy one, and it was ultimately resolved by a large majority that it was inexpedient to make the proposed application to Parliament.

South Weald.—The almshouses of the Brentwood Charity, situated at South Weald, besides being scattered, were dilapidated, and an order was issued from the Court of Chancery, and Mr. Teulon was appointed the architect to carry out a new establishment. The site selected is on the side of a hill inclining to the south. The type adopted is Early Middle Pointed; the material red brick and stone, with black brick. As all the arrangement is on the ground-floor, the *tout ensemble* has an extended appearance, particularly as the fall of the ground has been followed in a gradation of the houses. The chapel forms the central feature, being a parallelogram with three-light east and west windows, distinctive in their tracery. The brickwork is diapered symbolically, and the roof surmounted by a fleche, containing the bell. The interior has the eastern end seated stall-wise, with returns facing the east for the wardens, and this is enclosed with screen-work. The glass of the east window, by Ward, was presented by Lady Sophia Tower. As the houses of the men form the northern flank, and those of the women the southern, they have their respective entrances to the chapel beneath a cloister or covered way, formed by the extension of the roofs of the dwellings, which is, indeed, continued throughout. Each house contains a living-room, bed-room, pantry, and small kitchen, with a yard. The roofs are diapered. There is an hexagonal building on the plateau over the well, with a conical roof terminating in a finial, with this inscription carved within the cornice,—"The beginning of strife is as when one letteth out water; therefore leave off contention before it be meddled with.—*Proverbs.*"

Bridgnorth.—The new market-buildings and public hall are so far advanced towards a complete state, that the portion devoted to the marketting purposes was opened on Saturday before last. The new building is of brick—red, white, and blue—and in the Italian style, after a design by Mr. R. Griffiths, of Quatford, architect. The main block of the building is square, with a tower at the north-west angle; but with the markets which extend down Listley-street, the entire outline is a parallelogram. There are two façades—one in Bank-street, the other in Listley-street—with the tower at the angle. The general walling is of blue brick, banded with white; the quoins, strings, and plinths being also in white brick. The building is two-storied. In the main body the ground-floor consists of shops and entrance-hall, the tops of the windows and entrances presenting, in the exterior, a line of seven circular arches, the middle three having a pier of double width on either side, thus making them central. The arches are in alternate blocks of blue and white brick, springing from piers also in blue, banded with white. The windows and doorways have half-brick reveals in red. The upper story has a tier of windows the piers and arches of which are uniform with those in the lower. Above each of the windows in the upper story is a circular aperture, fitted in with grating in ornamental ironwork, for the purpose of ventilation. The façade in Listley-street is nearly uniform with the one in Bank-street. The markets are situate at the back of the main building, the exterior forming a continuation of the frontage in Listley-street, where there are ten windows and two arched entrances. The Public Hall being built over the centre of the markets, and not being so wide, leaves two side aisles in the latter, which are roofed in with rough-rolled plate glass. The principal entrance to the building is in Bank-street through two archways, fitted up with ornamental iron gates, opening into an entrance-hall, the floor of which is laid with encaustic tiles of plain design. There is a central stone staircase with cast-iron balustrades, conducting to a landing from which are reached the various rooms above the shops. This upper story contains a reading-room and library for the new Literary and Scientific Institute, a magistrates' room, and clerks' office, and the public hall, situate at the back, and over the centre of the markets. The hall is a parallelogram of 80 feet by 32 feet, and is lighted by six windows on each side. The markets are approached either from the principal entrance or from Listley-street. They contain fish-stalls, general and butchers' markets, the whole of which are paved with brick, fitted up with stalls, counters, &c. and have the gas and water laid on. The general market is divided into side-aisles and central avenue by piers and arches which support the public hall. The markets are lighted from the side windows in Listley-street and from the rough-rolled glass roofs of the aisles, and are ventilated by means of perforated zinc.

Leek.—The South Staffordshire Waterworks Company, in carrying out their Works at Lichfield, have found it necessary to alter the course of their tunnel through the town on account of sewage getting into the tunnel. They have therefore made a proposal to the Lichfield commissioners on the subject, but the commissioners have not acceded to it.

Sunderland.—A new tidal lighthouse has been recently erected by the River Wear commissioners on the south pier of Sunderland. It is constructed of iron, and has been placed immediately to the west of the old lighthouse, which is now nearly removed. The house has a catadioptric light of the fifth order, placed at a height of 58 feet above high water of ordinary spring tides. The new structure is circular throughout, and is elevated upon the raised platform or promenade of the pier. The total height from the pier to the top of the lantern-dome is about 53 feet.

SANITARY IMPROVEMENT OF MACCLESFIELD.

FROM the fourth annual report of the Mayor of Macclesfield, as head of the Local Board of Health, it appears that important results are now beginning to be seen obviously to flow from the sanitary measures in progress during the last few years. We must take a few extracts from this report, a printed copy of which has been sent us.

In the four years last past, 43 streets and 245 courts have been sewered, paved, and flagged; every privy and ash-pit belonging to them, numbering 290, has been drained, repaired, or rebuilt, and new ones have been erected where none existed before: 1,489 houses have been drained. In the execution of these works the Board have expended 15,416*l.*; and in the same period, nearly 36,000*l.* has been the entire expenditure.

The Board then refer to their tables of mortality. These tables show the rate of mortality before the operations of the Board to have been 33 deaths in a thousand, whilst the average of the last three years has been reduced to 26 in a thousand. The average age of death of all persons, which was formerly twenty-four years, is already twenty-nine years! Freedom from the former excess of preventable deaths is shown in the registered "causes of death," and singularly confirmed by the nearly uniform numbers dying in the last three years—namely, in 1854, 775; 1855, 797; 1856, 774. In all previous years there appears to have been no such uniformity, because, no doubt, those influences were in existence which rendered life more precarious, contagion more certain, and epidemics more frequent and malignant.

To sum up the benefits, therefore, it will appear that 812 lives have been saved, the proportionate number of cases of sickness to each death have been prevented, and the consequent expense avoided, the mean duration of life has been lengthened five years, and infantile mortality, one of the certain tests of the absence, or otherwise, of sanitary improvement, has been reduced 13 per cent.

An important hint, applicable to other places besides Macclesfield, is embodied in the following quotation from the report as to the approval of a plan for a chapel. "The board," it is remarked, "deemed it proper to require that adequate means of ventilation should be provided, under the direction of their surveyor; for it is worthy of remark that, whilst the Board are scrupulously particular in providing each tramp in a common lodging-house with 250 cubic feet of breathing space, being the admitted quantity of healthy respiration, there are places of worship where the allotted space is only 71 cubic feet for each person, without any provision for due ventilation, and the evil consequences of breathing over and over again the poisonous respirations from each other's lungs, have induced the Board to call attention to the fact, as the powers they possess must eventually be exercised to mitigate such insidious means of destroying health."

The police records and medical reports are said to bear testimony, as does the inspector's report, to the comparative freedom of the town even from crime as well as disease, since the proper regulation of low lodging-houses was first insisted on; and the reporter thinks that even had the exertions and the outlay of the Board had no other effect than this, they would have been thus well repaid.

PROGRESS OF MARSEILLES.

AT the meeting of the Institute of Architects, on Monday, December 1, other proceedings at which we have elsewhere recorded, the Secretary for foreign correspondence read a letter from M. Coste, architect, of Marseilles, part of which we translate. "Marseilles," says M. Coste, "although an ancient Phocian colony, does not possess any trace even of the remains of that period. A few fragments of Mosaics found during some investigations, indicating a Roman occupation, and some Christian sarcophagi of the Middle Age, are the only remains of times past. Marseilles has never been other than a commercial colony, inhabited by a varying population from the shores of the Mediterranean. It is divided into two parts, which adjoin one another; the high town (ancient), to the north, and constructed with narrow and winding streets, to protect it from the sun and wind; and the lower town to the south, divided by broad, straight streets, running from north to south, and from east to west. There are some sheltered public walks here, and it is inhabited generally by the commercial chiefs. The churches and public edifices scarcely offer any points of artistic interest. Some new public walks, planted with trees, have been added of late years.

I must mention, too, the canal which brings the waters of the Durance into the city. In the line of the canal they have put up—about twenty-five kilometres from Marseilles — an aqueduct of colossal dimensions, of which a de-

scription in a constructive point of view might interest. Some years since, the old port being insufficient for the increasing commerce, a new port was established between the years 1846 and 1852, by a strong jetty running into the sea in front of the Joliette—of which it bears the name—and to the west of the upper town. This new port was of great service during the war in the Crimea, and this has shown the need to construct a third, which will bear the name of Port Napoleon. The works of the jetties have been submitted to competition, the cost being nine millions of francs. It is in front of this new port that they are constructing a new town, on the site of ancient Lazaret, and on the parts taken from the sea, and where will be the docks, dockyard, and the station of the railway. It is in front of these two ports, on a promontory, that M. Vaudoyer, architect, has commenced the future cathedral in the Byzantine style; and on another promontory, at the entrance of the old port, the ground has been cleared, to construct there an Imperial residence, after the design of M. Lefuel, architect to the Emperor. The new Bourse, of which the designs were in Paris, is in course of execution in the Rue de la Canæbière, facing the Place Royal, near the old port. It is one of the great projects put forward by a company, to renovate the old city, lengthen the Rue de la Canæbière, and construct a fourth port to the south-west of the promontory, where the Imperial residence is about to be built. Two years ago a zoological garden happily placed to the east of the city, was established, to acclimatize animals which come to us from tropical countries—an establishment which improves every day.

Marseilles, under Napoleon I. numbered but 80,000 souls, and now, under Napoleon III. the population is 250,000—not reckoning the floating population; and there is no doubt but that in twenty years Marseilles will be the first city in France after Paris. My only regret," says the enthusiastic writer, "is, that I was born too soon to witness the full development of my native town."

LIVERPOOL LIBRARY AND MUSEUM COMPETITION.

After a long and stormy discussion at a meeting of the council on the 10th instant, the rewarded designs were put on one side as beyond the means in hand; and it was resolved,—

"That the corporation surveyor be directed to prepare, under the direction of the committee, plans for the new Public Library and Museum, having regard to the amount at the disposal of the committee."

It is unnecessary for us to say that this is but an added injustice towards those of the competitors who adhered to the conditions prescribed by the committee.

ARCHITECTURE AT THE MANCHESTER EXHIBITION.

The committee have decided on appropriating a small section of the building to architectural drawings and designs. The space will be limited. Arrangements will probably be concerted with the Royal Institute of Architects to make the selection, so far as London is concerned.

INDUSTRIAL SCHOOL FOR MIDDLESEX.

The selected design for the Middlesex School is by Mr. Barry, of the firm of Banks and Barry. We are informed it is one of the designs originally sent in to the committee, but not one of the seven selected by the referees, or one of those to which premiums were awarded by the magistrates! Of all the odd proceedings which have attended competitions it would be difficult to cite anything more odd than the story of this particular affair. A report on the subject is about to be published, and may, perhaps, throw some light on it.

Value of Quarry Land at Portland. — A portion of quarry land belonging to Mr. Scriven, stone agent, of Portland, says the *Sherborne Journal*, has been sold by public auction. In 1819 it was sold for about 90*l.*: it has now realised 1,160*l.*

THE LATE CHIEF SURVEYOR OF THE OFFICE OF WORKS.

Some time since Mr. Inman, the late surveyor of the Office of Works, presented a second memorial to the Treasury, reciting all the facts of the case, and pleading the hardship of the departure as regards him from previous practice. The result, we are happy to learn, is, that My Lords have amended for the second time their decision, and have granted him 533*l.* per annum, or two-thirds of his original salary of 800*l.*

THE ARCHITECTURAL MUSEUM.

The Committee of the Architectural Museum have determined, subject to some conditions, to accept the offer of the Board of Trade, of space in their museums at Brompton, or as the Board of Trade have erroneously determined to call it, Kensington-Gore South. The committee will shortly publish a statement of the reasons which influenced them.

A report is current that the Architectural Museum is about to be moved from Cannon-row to the "Brompton boilers." I do not know whether the subscribers have been asked to consent to this removal, but if not, would suggest that a meeting of them be called, before a step of such great importance to the Institution they uphold is irrevocably decided upon. I have no doubt that many powerful reasons may exist in favour of the contemplated change, and these, if fairly stated, might reconcile us all to the weary pilgrimage to Kensington every time we wish to consult the Museum casts; but I think we have a right to know what there is to justify a step which appears to me, and I dare say to others, an act of *felo de se* on the part of the Architectural Museum.

A Subscriber.

THE MAIN DRAINAGE OF THE METROPOLIS.

On Tuesday, the 16th, the Board of Works adopted, by the votes of 23 against 13, the plan B*, having the outfall at the point marked by Capt. Burstal. A strong protest against it, signed by nine members of the Board, was lodged.

PROPOSED MEMORIAL OF IZAAK WALTON.

Being very recently at Winchester, I saw the pavement-tomb of "good Izaak Walton" in the cathedral; the inscription almost obliterated by the wear of nearly two centuries. On my returning to town I asked assistance, and at first thought merely to restore the tomb. Upon consideration, I thought it would be a worthier undertaking if a portrait-tablet were also erected. Communications took place with the Dean and Chapter, and those gentlemen approving of the object, kindly consented to remit their fees if a proper monument were erected.

Mr. Johnson, sculptor, has furnished me with a design, which has been approved by the cathedral authorities. It is intended to be of marble, the head (a medallion) life-size; and the cost, with fixing, &c. will be about 100 guineas.

I intend to ask the aid of all the London fishing-tackle manufacturers to obtain subscriptions, and I entertain very little doubt of speedily obtaining the sum required. John Wilson, Hon. Sec.

BROAD HAVEN, SOUTH WALES.

Our usual sea-side places are so thronged every year that it really seems a charity to point the public to new spots, and you have occasionally commented on some of them. Will you, then, permit me through your columns to call the attention of speculators and enterprising builders to the extremely beautiful sites for erecting marine residences which are to be found at Broad Haven, on the shores of St. Bride's Bay, in Pembrokeshire, South Wales? The rocks are bold and romantic, and the air remarkable for its purity; the water clear as crystal, the sands hard and extensive, a western aspect, partaking of a medium between the relaxing south and often too bracing north. When one looks at the fine rows of houses built on the slopes of the muddy Bristol Channel, one wonders that these more picturesque shores and delightful situations of St. Bride's Bay have not attracted the attention of gentlemen of capital. One obstacle, it is true, has heretofore intervened, which was a want of communication; but the South Wales Railway has removed that obstacle, for this attractive situation is only six miles from the railway station at Haverfordwest (a capital market town), and from Milford Haven only five.

Some few parties have settled down there in the only houses fit for comfortable habitations, but the numerous applications for such residences show how many more of the health-seeking and health-requiring inhabitants of the smoky and busy towns of the kingdom would flock thither during the summer months if good accommodation were afforded.

I have visited all the watering-places around England's varied coasts, but have not been at a spot so fitted for the purpose to which I have referred; and some who sojourned there with me, though strangers to the place before, entertained the same opinion. I shall be glad indeed if this notice, for which I beg a place in your valuable publication, may strike the attention of parties with spirit and capital, and induce them to seek sites there; for there are many to be had at comparatively nominal prices fit for erecting buildings and terraces, which would, in a very few years, well reward them for their outlay, and make this equal, if not superior, to Ramsgate or Margate.

Cheltenham.

EXHIBITION OF FLEMISH PICTURES.

One hundred and twenty-one works of the modern Flemish School have been collected in the Gallery at 121, Pall-mall, and are now open to the public. Amongst them are some pleasing pictures, but the collection can scarcely be said to represent the school fairly. However, as a first step it is to be welcomed. Amongst the most noticeable are—"The Favourite Cat" (2), a delicate little picture by De Block; "The Proposal" (8), by De Braekeleer, full of character; M. Clère's "Redeemer" (16), over the door; "Andrea Vesale" (47), by Hanman; "The Christening," by Van Hove (101); and some of Van Schendel's clever repetitions of candle-light effects. Some of the works are noticeable for the inattention to perspective evident in them; for example, "The Algerian Woman" (118), parts of which are very clever; and "The Siege of Haarlem" (87), where the door of the chateau takes up a position quite independent of the building itself.

COMPETITIONS.

Gloucester Cemetery.—The Burial Board have selected the design of Messrs. Medland and Maberly, for the proposed cemetery, from sixteen that were submitted by various architects for their consideration. Near the centre of the ground will be placed the two chapels, united by their respective vestries, and a tower and spire 80 feet high, containing a bell, and forming the central feature. The entrances to the chapels will be through the porches at the further end of each chapel. These buildings will present a façade of 100 feet in length to the principal entrance of the cemetery, and also to the railway.

Norwich Workhouse.—The Norwich Court of Guardians have selected a design by the above-named architects for the first premium (100*l.*). There were thirty competitors. The cost of the building is not to exceed 20,000*l.* The second premium was awarded to Mr. G. B. Nichols, West Bromwich.

Foleshill Workhouse.—Will you allow me to ask a few queries respecting the so-called competition for this workhouse? 1. When were the printed replies, which were sent to those unfortunate persons who had devoted many days, and it may be nights, to the matter, struck off? 2. Had not *the design*, views of which were got up in London, been sent in a few days previously to the day fixed for the arrival of the other designs? 3. Was not this shown, and an understood selection made, ere the other designs had arrived? 4. What next?—A. M.

ST. JAMES'S, PICCADILLY.

The church of St. James, Westminster, has been re-opened by the Bishop of London. The church had been closed for three months for extensive repairs, alterations, and additions; the latter consisting of the erection of the vestibules at the western end of the aisles, filling up the angles on each side of the tower, and opening a communication through the basement story of the latter, thus forming a continuous ambulatory along the whole western front of the edifice, and extending beyond to the footway of Jermyn-street, giving direct access therefrom by doorways to the nave, the aisles, and by stone stairs to the galleries. By the removal from the interior of the church of the old stairs and numerous other projections, this church is now restored to its original uniformity, and the space these protrusions occupied converted into accommodation for the congregation. The whole interior has been thoroughly cleansed and re-embellished. These works have been carried out under the direction of Mr. Charles Lee, architect. The interior space gained by the alteration is to be appropriated to free sittings for the poor. The outlay has been about 3,000*l.*

The removal, from the interior, of the previous

stairs and other unsightly projections, so as to restore Sir Christopher Wren's *chef-d'œuvre* of parochial interiors to its original state, is of great advantage not only to the appearance of the church but to the accommodation of the congregation, which has been increased by 200 sittings. The alterations were suggested by Mr. Crane, the senior churchwarden.

The organ of this church was originally made by the celebrated Rene Harris, in 1687, for James the Second's Roman Catholic Chapel, Whitehall, and was set up in an elaborately adorned case by Grinling Gibbons. This instrument having, by the lapse of time, fallen into a state of great dilapidation, was in 1852 entirely rebuilt by the late Mr. J. C. Bishop (under the superintendence of Mr. Crane and Mr. Charles Lee), who introduced into it all the modern improvements. It contains forty-one sounding-stops, distributed among three rows of key-boards, viz. great organ choir, and swell with full row of pedals. The former are of uniform compass from double C to F in alt. every stop, with the exception of three in the choir organ, which latter are minus their lower octave. The total number of pipes is 2,240. The rebuilding of this instrument was the last work and avowed masterpiece of the late Mr. J. C. Bishop, and deservedly ranks amongst the finest of metropolitan church organs. The carving over the altar, by Grinling Gibbons, is worthy of attention.

THE METROPOLITAN BUILDING ACT.

"OPENINGS AND RECESSES."

UNDER the second rule of section 13 of the Metropolitan Building Act, 1855, it states that recesses and openings may be made in external walls, provided,—"that the area of such recesses and openings do not, taken together, exceed *one-half* of the *whole* area of the wall in which they are made." Can you or any correspondent inform me how it is, therefore, that in several buildings in the City which have been erected since the 1st of January, 1856, this rule has been altogether set aside, the openings being in some instances three-fourths of the area, and in some nearly the whole of the same; and at the present time there is a large stack of offices being erected on the north side of Fenchurch-street, the façade of which is nearly all windows?

There is in this and many other instances so clear a contravention of the Act, unless the same has been modified by some regulation of the Metropolitan Board, that I cannot understand how it is allowed.

AN OBSERVER.

*** We insert the above, not to raise objection in the case named, but as affording an opportunity to mention the annoyance caused by the regulation in question, and the impossibility in some instances of complying with it. In the City, where light is greatly an object, the district surveyors have probably abandoned the attempt. Shop-fronts they must leave out of the calculation altogether, and in the case of, say, carpenters' workshops, how can they insist on compliance with the clause?

ALNWICK CASTLE DECORATIONS.

IF not forestalling your intention of advising a cessation of the dispute in this matter, the following remarks are submitted as a summary of the questions which have been raised. Mr. Fergusson, in your paper of the 22nd ult. has raised what I must call a factious opposition to the duke, for he admits that no one can find an instance in which "the Gothic style" has been successfully treated; and so he disposes of Sir Charles Barry and Mr. Pugin. If he were to show in a drawing, instead of in the vaguest possible words, what he would have proposed, and how charming he could have made the interiors "without direct adherence to any known style," he would get fiercely criticised by his admirers, and learn the little use there is for any artist to practise "that free and untrammelled architecture" which Mr. Scott, in your paper of the 29th ult. pretends to advocate; winding up his address to the public through your columns, by observing, as one great fault of the work by Sir Charles Barry, that it did not have as a groundwork what he calls "the truly beautiful and refined style of St. Stephen's Chapel, a work worthy of any age." How Mr. Scott must wince under the denunciation of that chapel in your paper of the 6th instant, by one of "our two respected architectural professors," if he cares for their opinions. Mr. Donaldson's advocacy of the proceedings at Alnwick appears to be weak on two points; viz. his total forgetfulness of the English school of ornamental carving for the last thousand years, and his declaration that "when these carvers shall have left the works at Alnwick, they will be equal to any men at home or abroad." Mr. Donaldson is generally so cautious, that such a prophecy is a curiosity, except as a proof that the discussion has become exasperating, and that, therefore, the sooner it ceases the better. Mr. Donaldson, too, disposes of Sir Charles Barry and Mr. Pugin by saying that, "no modern building can be quoted, the Gothic internal fittings of which render it tolerable:" that is another specimen of the fierce criticism which may be expected if any artist ever has the good fortune to find a client willing to allow him to endeavour to realize Mr. Donaldson's, Mr. Scott's, and Mr. Fergusson's aspirations, that the genius of this country may produce a distinctive architecture of its own. One name has hardly been heard in this discussion: one voice has not been raised in defence or in explanation: but Mr. Cockerell must be grieved to observe, that when his foresight as to changes is being justified, his professional brethren should not prepare themselves to meet, without incoherence, without insinuation, and without intemperance, the alteration of fashion which it is not impossible we may owe to the duke's determination to have his house as comfortable as he could make it consistently with the display of magnificence which his rank is supposed to demand, and with the economy which all building-owners of the present day are supposed to be obliged to practise. Throughout this discussion more regard ought to have been shown for those who appreciate at their real value the works of Sir Charles Barry and the late Mr. Pugin.

PEACE.

STREET NOMENCLATURE.

AN elaborate report has been prepared by Mr. D'Iffanger, of the Metropolitan Board of Management, on the part of the committee to whom the Board referred this important subject. The report contains a communication on it from the General Post-office authorities, in which much anxiety is evinced that something should be done, and which contains various suggestions and reasons connected with it. From lists given, it appears that there are no less than 571 streets in the metropolis which have only seventeen names among them all!—a never-failing and interminable source of confusion, notwithstanding parasitical distinctions, such as Queen-street, Cheapside, Queen-street, Lincoln's-inn-fields, and six-and-thirty other Queen-streets; or Church-street, Chelsea, Church street, St. Giles's, Church-street, Islington, and more than thirty other Church-streets; many persons omitting all such distinctions, either inadvertently or ignorantly. There are sixty-two George-streets, fifty-five Charles-streets, forty-four John-streets, forty-four King-streets, &c. &c.; but, strange to say, no such superfluity, that we can notice, of such names as Smith-street, or Jones'-street, which moderation says a great deal in favour of the retiring modesty and humility of the numerous or rather the innumerable members of these respectable families.

The report enters fully into the subject of the substitution of new names, going so far, indeed, as to suggest distinct names for every superfluous one already in existence within the limits of the metropolis; the new names being chiefly taken from those of men of more or less eminence in past and present time, whether literary, scientific, poetical, political, or any other. In the mean time, however, it is proposed that the 571 streets with seventeen names (or one among twenty) should be first dealt with. In doing so, we would suggest that the greatest care should be used; but we will take another opportunity to speak more fully on the subject.

THE CHELSEA EMBANKMENT.

A DEPUTATION from the vestry of Chelsea, consisting of Mr. Tite, M.P.; Mr. Fielder (churchwarden); Mr. Perry; Mr. Slade, Q.C.; Mr. Foy, and Mr. Hall, attended by Mr. C. Lahee, vestry-clerk, waited on Sir Benjamin Hall at the office of the Board of Works, Whitehall-place, on Thursday, December 11, on the subject of the Chelsea embankment.

Mr. Tite having introduced the deputation, said,—The embankment, as originally proposed, was to have extended from Vauxhall-bridge to Battersea-bridge, and to complete the work a sum of 143,000*l.* was voted by Parliament. It so happened, however, that in executing one-half of it, the money was nearly all expended, and when the deputation urged upon Sir Benjamin the absolute necessity of completing it, he had said there was no compulsory power vested in the Board, but that he would ascertain if any money were left of the sum which had been voted for the purpose. We produced on that occasion also pledge after pledge given by former commissioners that the work should be completed.

Sir Benjamin Hall said, in reply, he had been over the whole of the works, beginning at Vauxhall-bridge, and found that they had been dragging on in a very improper way. He was quite prepared to carry them out as far as the property of the Government went, but had no power to go further: our power, said he, only allows us to negotiate with the parties who possess property along the embankment, and it is permissive with them to agree to or reject the proposals. They had rejected them, and had stated that if the works go on, they will resist: indeed beyond Chelsea Hospital we have been thwarted in every possible way, and our means do not enable us to prevent it. He was anxious to carry out the work, and believed it would be one of the finest things in the metropolis. As a local Board they had considerable power under the Metropolis Local Management Act, and in that capacity should take these parties in hand, and see and get some terms from them? The Government had a large sum of money saved out of the sum which Parliament voted for that purpose, and of course the Board should have it. They might also lay their plans before the Metropolitan Board of Works, and get them to assist; but if the Government had funds enough, they would carry the works on as soon as the difficulties respecting the property were removed.

THE MANAGEMENT OF COMPETITIONS.

IT has happened, in too many instances of late, that where competitions have been advertised, and elaborate designs sent in from all parts of the country, architects resident on the spot have had members of the committees frequently at their offices, and both rendering assistance by their suggestions, and all but pledged for their support, to say nothing of rejected designs having been first traced or borrowed from. By such means, not only have competitions been rendered useless, and the mottoes on the drawings and "address in sealed envelopes," been only "a mockery, a delusion, and a snare," to honourable men at a distance; but the practice of architecture, alike as a science and an art, has received serious injury. For no architect who can forget what is honourable and manly, so far as to adopt such a course, will ever be likely to throw that exalted sentiment into his compositions which architecture is capable of embodying, when the mind and hand labour under the inspiration of a noble and manly soul.

I cannot allow myself to give utterance to my feelings on a practice so unworthy and faithless, alike in the members of committees and architects, who are guilty of it; but I do think that it ought to be most openly and severely denounced, if the noblest of all the fine arts is to be raised from a degradation by which it has suffered so extensively.

BETA.

INSTITUTION OF CIVIL ENGINEERS.

ON December 2nd, Mr. Locke, M.P. Vice-President, in the chair, the paper read was "On Recent Improvements in Water Meters," by Mr. T. T. Jopling. After alluding to the generic merits and defects of piston and bucket meters, the author proceeded to describe a meter constructed on the piston or diaphragm principle, to meet the objections hitherto made to that class of meter. It consisted of two measuring cylinders, set parallel to each other, with working pistons, the rods of which projected out of the cylinders in opposite directions, carrying at their extremities slide-valve frames, for supporting and operating on the slide valves that governed the ports of the cylinders. These measuring cylinders were contained in a cast-iron case, or tank, into which the water to be measured entered under a certain pressure. The water thence passed into the cylinders, from which, after having acted upon one, or other, of the pistons, it made its escape. Through the agency of suitable counting apparatus connected with one of the piston rods, the reciprocating movements of the piston were counted, and thus the quantity of water passed through the meter in a given time was indicated. The measuring chambers were made somewhat like ordinary steam-engine cylinders, as respected the inlet and outlet ports, but in one of the cylinders the direction of the inlet ports was inverted, in order that the right-hand port might pass the water to the left-hand end of the cylinder, and the left-hand port to the right-hand end. By this means the two pistons were enabled to follow each other in the same direction, and to maintain a continuous stream of water, without the use of cranks.

ST. MARY'S CHURCH, SPRING-GROVE, HOUNSLOW.

THIS church has lately been erected on the Spring-grove estates, Hounslow, and is of large dimensions, in order to meet the requirements of the residents of a largely increasing neighbourhood. The accommodation on the ground-floor is for one thousand. Foreseeing the probable necessity of largely extending this number, it was thought desirable to provide for such contingency, by considering galleries in the north and south aisles as parts of the structure; the architect has accordingly so arranged his design, that the building shall at any time be prepared to receive such additions without interfering with the appearance of the church. Hence, the windows in two ranges in the aisles and the corbels, and other preparations internally.

The church consists of nave, 84 feet by 27 feet;

north and south aisles, 84 feet by 13 feet; chancel, 44 feet by 27 feet wide; chancel aisles, 29 feet by 13 feet wide; north porch, 10 feet by 9 feet wide; tower, 12 feet by 12 feet, internally, which also answers as a south porch. Vestry, 18 feet long, and of the width of the north aisle. The tower, which is 76 feet high, when completed, will be surmounted with a spire, 84 feet high, with cross and vane, altogether 160 feet high. Ample means of access to the galleries have been provided by lateral lobbies to each aisle, which assume in the elevations a quasi transeptal appearance, occurring as they do near the junction of the nave with the chancel. The organ will be placed in the gallery provided at the west end. The church is in the Gothic style, of the Geometrical or Early Decorated period. Internally we find the nave united with the aisles by arcades of six bays. The nave opens into the chancel, with a moulded arch spanning the whole width of the nave, and resting upon massive corbels from piers here increased in size for that purpose. The chancel opens to the chancel aisles by a similar arcade of two bays to that in the nave. The church is more fully lighted by a large east window, and by a wheel window in the nave, of the diameter of 15 feet.

This building is an example of the application for such purposes of the stone facings invented and patented by the architect, Mr. John Taylor, jun. of Spring-grove, and 40, King-street, Cheapside. This facing, in connection with solid Bath stone dressings, has been used, externally and internally, for the structure, which is mainly built of brick.

PAYMENT OF SURVEYORS.

APPEALS AGAINST THE RATING OF WHITECHAPEL PARISH.

In the year 1850 a professional friend, who was engaged by several parties in Whitechapel to survey and value their premises, and support an appeal against the new rating made on their respective properties, directed me to make the required surveys and valuations to strengthen the evidence, which I accordingly did, the rating being reduced by the magistrates, and the clients appearing well satisfied with the result.

Expecting that the solicitors would apply for my claim, I neglected for a long time to send it in; but did so at length to the respective parties, on learning that all the other claims had been paid. Another long interval elapsed, and after many applications for payment, the liability was disputed by each, under the plea that they never employed me.

On this I issued summonses in the Whitechapel County Court, which were heard on Thursday last, when the surveyor directly employed by the appellants attended, and testified that at a meeting of the several parties and the solicitors, he had suggested the necessity of obtaining further evidence, which was agreed to, and upon which he engaged my services. A letter from the solicitors to myself was also read in court, in which, although repudiating the employment of me by themselves, they stated, "We admit that our clients had the advantage of your services."

The first and second cases the judge decided must be paid, no objection having up to that time been raised to the charges. The parties then shifted their ground, and objected that the charges were too high for the services performed, and attempted to show that I had made the surveys of four manufacturing premises in half an hour. The ultimate decision was, that the charges in each case should be somewhat reduced.

Although I could not be well satisfied with the amounts awarded, I yet was content in assisting to establish the principle that a surveyor is not to be called in to do service in such cases, and then to be told to apply to his professional brother for payment of his claim. W. F. Meakin.

THE MANSIONS AND PALACES OF ENGLAND.

Architecture is now becoming so prevailing a science among all classes of people, that every assistance ought to be given to it, by means of works descriptive of cathedrals and churches, palaces and mansions. Cathedrals and churches have been written about and illustrated, but of the other class of buildings—palaces and mansions—there is so little account, that, except to a few, these

"Stately homes of England"

are almost entirely unknown. This deficiency must, I should think, be lamented by all true lovers of the art, and it is to remedy this want that I shall take up a few lines in your valuable paper.

In surveying many of the English residences, such as Chatsworth, Holkham, Castle Howard, and Hamilton Palace, I have been struck by the beauty and almost antique purity of many of their details, the effective grandeur of their exterior (noticeable especially in Castle Howard), and the elegance, comfort, and, at the same time, splendour of their interior. "Cannot," I have often thought, "some of these details be transferred to paper, as helps in design, not to builders only (for more works, 'for the use of builders,' are now almost superfluous), but to the architects of the whole world?"

Look at a map of England, and behold it jotted over with green to mark the residences of the princes, nobles, and gentry of our land. Many of these parks are adorned with buildings which might take their stand against the boasted palaces of Italy, designed though they be by the master minds of Palladio and Bernini. The walls of the Italian palaces may glow with more of the paintings of Raffaelle and Guido: they may be situated in fine scenery, and in a more general clime: *they* have been written about, until travellers may now, untaught, and without the help of the cicerone, recognise the Villa Borghese; but no one has thought it worth his while faithfully to mention or illustrate our English homes!

Before concluding, I would humbly offer some suggestions on the subject in hand. Could not a work be written and illustrated on our English palaces and mansions? The letter-press might be written by an accomplished architect, who would be thoroughly able to cope with the subject, and the necessary engravings taken from photographs. A work in parts makes it purchaseable by persons of smaller means than if published at once. In each part, let one residence, if large, or two, if small, be described. A ground-plan, two elevations, and several details (the first three on steel, but the others woodcuts), would constitute the engravings.

The size of the work would depend mainly on the amount of subscribers: but surely, when we see the debased Gothic of Windsor described in the huge work of Mr. Nash, it is possible that a work of such utility as the one I propose might receive the same patronage as the one before mentioned. And will not Englishmen bring out a work illustrative of those homes, the happiness of which is famed in prose and verse, with the generosity and in a manner worthy of our great nation? E. G. Culling Eardley.

THE WESTMINSTER CLOCK AND BELL.

After divesting Mr. Denison's letter, published in the *Builder* of December 6, of the peculiar tone and epithets with which it is decorated, the matter it contains resolves itself into the following:—

First, that the proportion of weight and fall given in my communication, viz. 120 lbs. for the hammer and 6 inches for its fall, are "fabrications" of my own, and not to be found in the parliamentary papers, unless I have, as Mr. Denison expresses it, "blunderingly transferred the folly of the company of clockmakers to his account." Secondly, that in designing the clock he made provision for its having to lift a hammer of 400 lbs. and give it a fall of 12 inches, and that evidence is to be found of his having long contemplated this as the least quantity of work which the clock would have to do; and further, that now the bell has been cast, he finds even this weight and fall of hammer will have to be considerably increased.

In reply to the first part, I have to state that before writing the letter to which Mr. Denison refers, I carefully examined all the published parliamentary returns to the House of Commons, viz. No. 724, session 1847; No. 257, session 1848; No. 500, session 1852; and No. 436, session 1855; and that I have since gone diligently through them again, and the result is that I have not found any inaccuracy or error whatever in my former statement. The weight of 120 lbs. and fall of 6 inches are neither "fabrications" of my own nor were they quoted, according to Mr. Denison's other suggestion, from the "blundering statements of the Company of Clockmakers," but were taken from a table given by the late Mr. Dent, at page 56, parliamentary return No. 724 of 1847; and let me add, that I purposely confined myself throughout the letter to the quantities and figures given by Messrs. Dent and Denison themselves, thinking that the latter gentleman would not then question their accuracy.

In reply to the second part, I have to observe that I can find no mention or hint throughout the whole of the returns, either from Mr. Denison or any one else, that a hammer of 400 lbs. falling 12 inches would probably be required for the bell, which it was understood, before the first return was published in 1847, was to weigh from fourteen to fifteen tons; neither has any provision been made by enlarging the clock for the enormous and indefinite increase of work which Mr. Denison, in order to get his bell purchased by the Government, seems now disposed to throw upon it. The main striking wheel remains at 3 feet diameter, and it has never been increased in any of the plans of Messrs. Dent and Denison from the date of the first return in 1847 to the last return in 1855, and at this date the clock had been made.

In justice to the late Mr. Vulliamy, I must remark, that the plan for the clock which was sent in by him, and which Mr. Denison ridicules under the title of the fraternity of clockmakers' plan, as being too small for the purpose, was larger than any of the plans proposed or carried out by Messrs. Dent and Denison, as the diameter of Mr. Vulliamy's main striking wheel was 3 feet 7 inches; nor is this the only advantage in durability which Mr. Vulliamy's plan exhibits over Mr. Denison's, for it had gun-metal wheels throughout, whilst the wheels of the clock that has been made are all of cast iron, the commonest and cheapest material that could be used; nor is this all for which the public have to thank Mr. Denison, for he has so managed matters, that the Government will have to pay as much for the clock as though it had been made of the more durable and costly material.

In conclusion, I again set forward the principal questions to be kept in view, which are:—

1. What is the force which the clock now made is calculated to lift? To this I reply, that taking into consideration the size of the striking part, the time it should last, and the fact of the wheels being composed of cast iron, 120 lbs. for the hammer, and 6 inches for its fall, is the greatest quantity of work which the clock should be allowed to do.

2. What is the force which a good bell of 16 tons should require? To this I reply, that taking the Oxford bell as the standard, which weighs 152 cwt. and is struck by a hammer of 54 lbs. falling 4½ inches, and considering that Mr. Denison's bell was to have been much superior to the average quality; a hammer of 120 lbs, falling 6 inches, ought to be amply sufficient to bring out the tone. E. T. Loseby.

Miscellanea.

The Photographic Society.—On the evening of Wednesday last, the council of the Photographic Society gave a *soirée* in the large room of King's College. It was very numerously attended—the company including many persons eminent in the arts and sciences, as well as an array of photographers, both professional and amateur. On the walls and tables were displayed an immense collection of photographs of every degree of merit. Some of the portraits were admirable. The whole affair was well arranged.

Aluminium now in use at Sheffield.—The value of this new metal is beginning to be felt at Sheffield. Little more than a year ago, it was dearer than gold. It is now produced at much less cost, and its production may probably be still further cheapened. It is found to be applicable to the plating of goods for which gold and silver has hitherto been used. A correspondent of a contemporary, evidently not knowing much of what he is talking about, adopts the safe and advantageous tactics of speaking contemptuously of those who are hopeful as to the ultimate introduction of this new metal as a substitute for silver, and for many other purposes; but infers that because it is still, as he says, "twice the price of silver," therefore it is scarcely possible that articles of common utility, such as forks and spoons, can already be made of it as a substitute for silver; whereas, even were the cost of the articles made from it twice as much as those of silver, *which by no means follows*, the freedom from tarnish, and the greater hardness, as well as the lightness of the new material, are valuable properties which may render it not only preferable to silver for such articles, but as such actually *worth* twice the price. That although aluminium be "twice the price of silver," however, articles of utility may, even as a matter of actual cheapness as well as economy, be already made of it and sold at an absolutely lower price than those of silver, no one who is acquainted with the well-known fact that its specific gravity is only 2·25, and hence that it is only about a fourth part of the weight of silver, bulk for bulk, or, in other words, that its bulk is four times that of silver, weight for weight,—and who at same time is capable of apprehending the very obvious inferences deducible from that fact,—can for a single moment doubt. Even at "twice the price of silver," weight for weight, aluminium on the "own showing" of this "*gobemouche*," as he calls several of our daily contemporaries and others, is thus actually *already* only half the cost of silver, bulk for bulk! and that it may yet be obtainable at far less cost than even at present there is every reason to hope.

Manchester and Salford Sanitary Association.—The annual meeting of this very useful association was held on Thursday in last week, the Bishop of Manchester in the chair. The bishop addressed the meeting at some length, as did various other gentlemen, and several appropriate resolutions were passed approving of the report of the association and of their purposes and proceedings. A similar meeting of the Ardwick and London-road District Association was also held last week at Ardwick, the Mayor of Manchester in the chair. To these meetings we shall again advert.